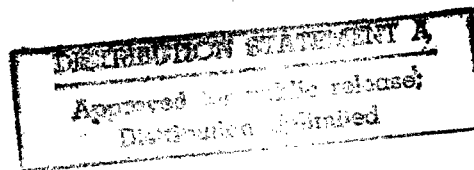


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16 July 1985



## Worldwide Report

# TELECOMMUNICATIONS POLICY, RESEARCH, AND DEVELOPMENT

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16 July 1985

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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HONG KONG

# MULTIPLEX SOUND SYSTEM PLANNED FOR HONG KONG TELEVISION

Hong Kong SOUTH CHINA MORNING POST in English 23 May 85 p 22

[Article by Ursula Yeung]

[Text]

By the end of next year, television viewers will be able to choose programme languages for themselves when watching either the English or Chinese channels.

The development of the Multiplex sound system by local television stations will give viewers the freedom to choose from Cantonese, Putohghua and English when watching programmes on either English or Chinese channels.

Viewers wishing to use the system will either have to install new TV sets with the reception device or have their sound systems adapted.

The adaptor will cost under \$1,000 and new sets with the reception device are expected to cost 10 per cent more than those without, the controller (programme and promotion) of TVB, Mrs Yvonne Siu, said yesterday at a demonstration of transmission using the new system.

Television Broadcasts Ltd started investigating the possibility of applying the system locally in 1976.

Last year, it submitted a proposal to the Television and Entertainment Licensing Authority and was given green light on a joint experiment with the British Broadcasting Corp to test the technical feasibility of the system in Hongkong.

Laboratory and on-air field tests began early this year with TVB acting as the co-ordinator of the project in Hongkong. Asia Television Ltd joined the project later.

The first batch of test equipment was assembled in January and field tests were conducted in March with the Post Office, ATV and Radio and Television Hongkong.

Besides being able to choose the language of viewing, the system will also allow viewers to enjoy digital stereo sound effects.

"The system will be applied in specific types of programmes, such as music programmes and drama series, at the beginning, but eventually we hope to apply it to all programmes," said the assistant controller for drama at AVT, Mr Tsui Siu-ming.

CSO: 5550/0109

HONG KONG

BRIEFS

DIGITAL SWITCHING SALE--Germany's largest computer manufacturer, Nixdorf, has made its first sales to China with contracts for digital telephone switching systems amounting to almost US\$500,000, the regional manager, overseas, Mr Hans-Heinz Wilcke, said yesterday. Mr Wilcke also announced the reorganisation of the Hongkong office to form a new company, Nixdorf Computer (China), to focus on developing long-term prospects in China. The new company's managing director is Mr Eddie Hwang, previously managing director of Nixdorf's Hongkong operations. The Hongkong company will be headed by Mr Michael Maquet, formerly marketing and sales manager. The systems, PABX 8818 were sold to China through two of Nixdorf's Hongkong-based distributors--Trans-World Telephonic Engineering Co and Swire Engineering Ltd--to No 1 Radio Factory in Jinan and the Shenzhen Electrical Appliance Co in Shumchun. Delivery is expected at the end of this month. [Text] [Hong Kong SOUTH CHINA DAILY NEWS in English 23 May 85 p 3]

CSO: 5550/0110

INDONESIA

BRIEFS

EASTERN MICROWAVE TELECOMMUNICATIONS SYSTEM--Kupang, (KOMPAS)--A microwave telecommunications system is expected to cover the whole East Nusatenggara region as well as other eastern parts of Indonesia. When this is realized, the authorities will not have to rely on the satellite network system, the occasional breakdown of which led to complete disruption of telecommunication links. The head of the Kupang regional telephone office, Sunaryono, made these remarks to KOMPAS on Saturday in conjunction with the construction of a telecommunication antenna tower at the Physical Education Academy complex in Kupang with a view to upgrading the air traffic services. [Excerpt] [Jakarta KOMPAS in Indonesian 13 Jun 85 p 9 BK]

CSO: 5500/4338

JAPAN

JAPAN, PRC TO COOPERATE IN WEATHER OBSERVATION

OW071113 Tokyo KYODO in English 1108 GMT 7 Jun 85

[Text] Tokyo, June 7 KYODO--Japan and China Friday signed an agreement to cooperate in the implementation of a plan to conduct meteorological observations in southwest China in order to raise the accuracy of weather forecasting.

The two countries hope to implement the cooperation plan three years from now.

At present, meteorological data on China collected at 610 places are supplied to Japan four times daily. However, because of the absence of telephone circuits, no data on Yunnan Province and some other parts of the hinterlands of China are available.

According to the cooperation agreement signed Friday, China will install automatic weather observation instruments at 50 places in the southwestern region of China with technical cooperation from Japan.

Meteorological data to be collected by the automatic observation equipment will be sent to the weather observation satellite "Himawari," which in turn will transmit them to the satellite center in Kiyose City in the suburbs of Tokyo.

Chinese meteorological data to be collected at the satellite center will be sent back to the State Meteorological Bureau of China by cable.

Under the agreement, joint research on the flow of atmospheric currents over the Himalayas will also be undertaken. It is hoped that the swelling and waning of the Tibetan high atmospheric pressure area which has a close connection with the summer heat in Japan will be elucidated.

Japanese meteorological agency officials said that when meteorological data on the hinterlands of China are made available, the agency will be able to raise the accuracy of its long-range weather forecasts.

China will benefit from this cooperation project as it will be able to obtain meteorological data on an area where there has been no weather observation network.

CSO: 4100/560

JAPAN

# BRIEFS

5 GROUPS TO ENTER TELECOM MARKET--Tokyo, June 7 KYODO--Posts and Telecommunications Minister Megumu Sato said Friday the ministry plans to give its approval late this month for five groups to enter the telecommunications business so far monopolized by Nippon Telegraph and Telephone Public Corp (NTT). Sato told a press conference that the approval would follow recommendations on Japan's telecommunications to be submitted early next week by an advisory council to the minister. Five groups, including second NTT Kikaku (planning) led by Kyocera Corp and Nippon high-speed communication of the Japan Highway Public Corp, have applied for the so-called type 1 telecommunications business--owning, operating and renting telecom circuits. The three others are Nippon Telecom of the Japanese national railways, Uchu Tsushin, a joint venture set up by Ford Aerospace Satellite and Mitsubishi Corp, and Japan Communications Satellite Co, a joint venture formed by Hughes Communications Inc, C. Itoh and Co and Mitsui and Co. The expected approval of the groups, which include American firms, is likely to have favorable effects on Japan-U.S. trade relations as they are to purchase American-made satellites. Another group, led by Sony Corp, plans to apply to enter the business using a satellite but is unlikely to get ministry approval, industry sources said. "I think three groups are too many for the satellite communications business in terms of demand," Sato said. [Text]  
[Tokyo KYODO in English 0431 GMT 7 Jun 85 OW]

NEW U.S. TELECOM DEMANDS EXPECTED--Tokyo, May 25 KYODO--The U.S. will soon request total abolition of import duties on telecommunications equipment and more procurement by the Japanese government of foreign telecommunications equipment, government sources predicted Saturday. The new requests are expected to be made by the U.S. in bilateral government-level negotiations, due to be held in Washington May 29-30, on the procurement of foreign telecom equipment by Nippon Telegraph and Telephone Corp (NTT), the sources said. Japan's import duties are 5.7 percent for electronic exchangers, 4.2 percent for telephones and 5.1 percent for wireless communications equipment. The U.S. is apparently hoping for abolition of import duties and a "tangible" increase in procurement by NTT, according to the sources. But the Posts and Telecommunications Ministry does not want to single out telecom equipment or discuss abolition of import duties on it, they said. The sources also said the U.S. has long been dissatisfied that Japan has not opened the door wide enough for non-Japanese makers to supply telecom equipment to the posts ministry and other government ministries and agencies. The U.S. request for more procurement by Japan of foreign telecom equipment will be fully discussed, not in Washington but in Tokyo, when bilateral sub-cabinet level telecom talks are held June 3-4, the sources said. [Text]  
[Tokyo KYODO in English 1055 GMT 25 May 85 OW]

NATIONWIDE VAN SERVICE--Tokyo, May 16 KYODO--Fujitsu Ltd. will launch a nationwide enhanced information and communication service, known as a value-added network (VAN), October 1, Mamoru Mitsuji, managing director of the electronic maker said Thursday. Mitsuji told the foreign correspondents club of Japan that the Japanese VAN service market, now estimated at 300 billion yen, will expand at an annual growth rate of more than 20 percent to 800 billion yen in 1990. Fujitsu's targeted share in the market not taken by Nippon Telegraph and Telephone Corp, the giant VAN supplier, is about 30 percent, he said. To cope with the rapidly growing market, the Japanese maker is constructing a backbone network for a nationwide digital telecommunications services "fenics," at a cost of more than 30 billion yen over three years from last year, Mitsuji said. The network consists of seven host computer systems located at Tokyo and Osaka, five data switching centers and 64 access points which are connected with each other using high-speed digital data lines from 1.5 to 6.3 megabit-per-second cables, according to the Fujitsu executive. [Text] [Tokyo KYODO in English 0939 GMT 16 May 85 OW]

SUBSIDIARY FOR FOREIGN PROJECTS--Tokyo, May 20 KYODO--Nippon Telegraph and Telephone Corp (NTT) President Hisashi Shinto said Monday that the corporation will establish a subsidiary, tentatively named NTT International, to receive overseas orders jointly with other telecommunications firms. Shinto told the Japan press club that NTT, which undertook all its projects in collaboration with Japan Telecommunications Engineering and Consulting (JTEC), a semiofficial organization, before NTT's denationalization last April, has no experience in "internationally big ventures" on a commercial basis. "NTT intends to embark upon overseas projects. But it lacks the capability for overseas activity except planning and supervision over construction," Shinto said. The telecom firm started a sales drive for overseas consulting and engineering business last fall, as soon as its privatization had been settled. [Text] [Tokyo KYODO in English 0717 GMT 20 May 85 OW]

NEW SATELLITE COMMUNICATIONS SYSTEM--Tokyo, May 13 KYODO--Kokusai Denshin Denwa Co (KDD) has developed what it claims to be the worlds smallest satellite communications system which technically enables satellite communications from moving cars, boats or aircraft, KDD officials said Monday. The 45-kilogram equipment with an antenna 40 centimeters in diameter is much smaller than the conventional one mainly in use aboard ships. It weighs 160 kilograms and has an 80-cm antenna. KDD, Japan's international telecommunications monopoly, plans to start commercial production of the system around 1990 when a second-generation communications satellite will be orbited by the International Maritime Satellite Organization (INMARSAT), the officials said. The new computerized equipment adopts a digital signal communication system that enables users to transmit more vivid characters and patterns as well as voice signals more quickly than the existing equipment based on an analog signal system. The officials said the new system is expected to be marketed at around 7 million yen, less than the 10 million yen for the conventional type. [Text] [Tokyo KYODO in English 0852 GMT 13 May 85 OW]

BROADCAST SATELLITE LAUNCH TO BE DELAYED--Tokyo, May 9 KYODO--Launching of a new broadcasting satellite, originally scheduled for September, may be postponed to January or February due to delays in performance confirmation tests in the

United States, it was revealed Thursday. And if the launching of the Yuri (Lily)-2B is delayed, Japan's large rocket launching plan scheduled for early next year will be gravely affected, the National Space Development Agency said. The Yuri-2B is a substitute for the Yuri-2A which suffered breakdowns in two of its three transponders, the system for relaying amplified electric waves to ground stations, after being put into orbit in January last year. America's General Electric Co (GE), which is undertaking performance tests on the satellite, started work on January 12, aiming to finish in about a month towards a September launch, the agency said. However, one of the satellite's three transponders was later found to be faulty, causing a delay of over two months in the performance tests, it said. GE says all checks will be over around May 20 as they are now in the final stages, but this will be too late for the scheduled launching, the agency said. Extra preparations are needed if the satellite has to be put on the launcher in winter, and the delay unavoidably affects the next H1 rocket-launching plan, the agency officials said. [Text] [Tokyo KYODO in English 0557 GMT 9 May 85 OW]

CSO: 4100/560

MALAYSIA

# TELECOMMUNICATIONS OUTLOOK FOR 1992 FORECAST

Kuching THE BORNEO POST in English 18 May 85 p 4

[Text]

KUCHING, Fri. — Malaysia will have an additional 2.6 million telephone lines by 1992 following the signing of two contracts with two local suppliers by the Telecommunications Department recently.

The department has also made another \$2.5 billion contract with four bumiputra firms to supply 1.7 million programme channels throughout the nation on a 'turnkey' basis.

Speaking at the launching of a telecommunications exhibition held in conjunction with the World Telecommunications Day at Jalan Were office here this afternoon the Minister of Energy, Telecommunications and Posts, Datuk Leo Moggie said many more projects were under implementation to provide the telecommunication infrastructure facilities for

the rakyat.

He told the staff of the department to ensure that facilities provided would be beneficial and within the reach of the rakyat as otherwise all the projects and sophisticated equipment installed would go to waste.

The Minister urged the staff to continuously upgrade their services to ensure maximum efficiency in the utility and maintenance of their equipment.

He also advised them to start adopting the attitude and style of a commercial organisation although their department was still administered as a government body.

"This means that you have to adopt the modern commercial, marketing and advertising principles in the effort to introduce and get more people to utilise your facilities," he

told them.

Only through such principles, he said, could the Telecommunications Department hope to provide efficient and quality services to the consumers and at the same time guarantee better return of the sum invested, he added.

"As we are in the information technological era where computer technology is used widely, we have to move accordingly to cope with rest of the world in the field of communication," he pointed out.

He was proud that the department had successfully implemented, beside ATUR, Maypac, Datel and Telefax in the country.

The failure or continuous success of these projects depended very much on you as members of this department, he told them.

CSO: 5500/4339



MALAYSIA

NO FIXED SCHEDULE FOR TELECOMMUNICATIONS PRIVATIZATION

Kuala Lumpur BUSINESS TIMES in English 17 Jun 85 pp 1, 36

[Article by Vong Nyam Ming]

[Text]

MALAYSIA is still actively charting a course towards the privatization of Telecoms and hopes to achieve this as soon as possible. But there is still no fixed schedule, said Energy, Telecommunications and Posts Minister Datuk Leo Moggie.

"There is no final decision yet, but Telecoms may initially be a commercial organisation set up under the Companies Act with the government controlling the majority equity," he told reporters yesterday.

The first step in this direction would be the setting up of a company called Syarikat Telekom Malaysia (STB) to take over the role of the Telecoms Department, according to Telecoms Director-General Daud Ishak.

Initially, STB will be fully government-owned. Later, the government's investment in STB will be divested in stages to the private sector.

Earlier, opening a seminar on telecommunications information technology, Datuk Moggie called on telecommunications planners to review their role in meet-

ing new challenges to provide better facilities to the business sector and rural areas.

Stressing that he was speaking on a hypothetical basis and that nothing had been committed yet, Datuk Moggie said that regulation and licensing of the agency would be directly by the government, perhaps via a unit in the Ministry.

He said that services provided should be adequate and cheap to enhance the country's economic growth.

The seminar was attended by about 75 participants from various local and foreign telecommunications organisations.

Encik Daud, who presented a paper on *World Telecommunications and Malaysia's Policy*, disclosed that the average national telephone density would be 8.7 main telephone lines for every 100 people by the end of the Fourth Malaysia Plan this year compared with 5.7 at the end of last year.

"The telephone density will vary from 3.2 in Kelantan to 22.5 in the

Federal Territory.

"Compared with the advanced countries' 40 main telephone lines for every 100 people, we can easily appreciate that our telecommunications system has considerable scope for expansion to keep pace with economic growth.

"Coverage will have to be extended further into the less developed areas of the country.

"Such expansion by itself is not sufficient — we must ensure that the tariffs are affordable. Productivity and economic growth are stimulated by telecommunications.

"Telecommunication development is very capital intensive and the ratio of assets to turnover is in the order of 1:3 or 1:4. Fixed assets form almost 85 to 90 per cent of total assets.

"On the average, the cost for a new main telephone line in our present network is about \$5,500. This is expected to decrease as the network expands. During the Fourth Malaysia Plan period, \$6.55 billion was allocated to telecommunications development.

"An important characteristic of the Malaysian telecommunications market is that nearly 70 per cent of telephone lines is provided to residential homes.

"The telecommunications infrastructure must employ state-of-the-art technology such as optical fibre cables, satellite and cellular radio. The digitisation of the network must be accorded top priority because digital technology opens the door for provision of new services and brings about substantial cost savings in network construction and operations.

"The ultimate aim is to integrate the existing different networks for telex, data and voice into one unified digital network. This is the concept of ISDN — integrated services digital network.

"By the early 1990s, the network will be adequately equipped to provide ISDN services."

Because of the privatization of terminal equipment like subsets, he said, Telecoms had already decided to use the plug-and-socket method of installing telephones.

CSO: 5500/4337

PEOPLE'S REPUBLIC OF CHINA

TELEPHONE COMMUNICATIONS IN SHANGHAI

Shanghai DIANZI JISHU [ELECTRONIC TECHNOLOGY] in Chinese Vol 12, No 2, 12 Feb 85 pp 2-4, 8

[Article by Xiao Xizhang [5135 6932 3864]: "Prospects for Telephone Communications in Shanghai"]

[Text] I. A Survey of Telephones in Shanghai and Development Trends

Since the 3d Plenary Session of the 11th Central Committee, the installation of telephones in Shanghai has freed itself from a situation of long interruptions and hesitation to enter a period of development never before known. Telephone exchanges increased on an average of nearly 15,000 per year during the Sixth 5-year Plan, which was an average yearly growth rate of 15 percent. The rate of circuit and equipment construction has been quick but has been limited by construction labor, building materials, and municipal government management. Circuit equipment, especially electric cable for wiring subscribers, cannot keep up with the pace of developments in exchanges. This has resulted in a situation where there is an imbalance in the development of exchanges and wiring, which difference has been increasing yearly. For the last few years there has also been rapid development in suburban and county communications, and overall installed capacity for urban areas and suburban and county has reached 190,000. However, from the point of view of objective needs, communications equipment in Shanghai has yet to overcome a situation of operator congestion, sustained obstruction, and large quantities of unprocessed customer applications. The reason has been that development of telephone communications has for a long time been seriously neglected and the accumulated burden has been too great, while at the same time requirements for communications due to the economic construction have increased daily. Because of this, for years to come we will have to develop communications networks with even greater speed. Otherwise we will not be able to get away from a passive situation, not to mention play a leading role in the four modernizations program.

The Ministry of Posts and Telecommunications and the leaders of Shanghai Municipality well respect this problem of communications falling behind the times and are trying very hard to make things easier and create suitable conditions in the way of economic policies. In the Seventh 5-year Development Plan drafted under the leadership of the Posts and Telecommunications

Management Office of Shanghai Municipality, the capacity of Shanghai exchanges will be quadrupled over the 1980 base, and on that occasion the installed capacity of exchange capacity will reach 387,000 in the urban area and in the suburbs and county should reach 113,000, for an overall capacity of the two together of 500,000. The rate of spread of telephone sets in the urban area could reach about 8 percent by 1990.

Whether from the point of view of technology or management, communications networks are all huge systems of intensive organization that cannot be interrupted for a moment. Their maturity and development cannot depart from the existing base. Every expansion of capacity in a communications network will necessarily introduce a corresponding alteration of each part. The continued development of metropolitan telephone networks will cause even more complications for many technological problems, and some large problems will require diligent study and definite measures to deal with them. Among these problems are: 1. signal mode and collection mode; 2. number system; 3. policies for expenses and fees and ways to measure service; 4. transmission programs; 5. transition methods for digitizing the networks. Because in recent years the Shanghai telephone communications network has been in a process of acute change, there has not been time to systematically and closely study the problems mentioned above. This article seeks to clarify some of the problems that have already been touched upon to some degree before in earlier work, and discuss my own views. The goal is to elicit your concern, which will facilitate developing further exploration in suitable situations.

## II. Signal Modes and Collection Modes for the Shanghai Telephone Network

Communications equipment in Shanghai Municipality has been obsolete and complicated for a long time. When in 1957 the unified six digit dialing numbers were put into effect, the primary collection function in Shanghai was the responsibility of seven A1 rotating exchanges, which also played a leading role in the network. In the 1960's and the early part of the 1970's, the various exchanges that we had made ourselves to install in the Shanghai telephone network, including a first link in long distance and collection center for cities and county, were restricted to varying degrees by the rotation system. Moreover, we had to use the "retransmitted pulse" as the primary (JU JI [1444 7139]) signal mode. When using rotating exchanges as collection equipment there are certain rather serious deficiencies, like complicated signals, excessively short transmission distances, very slow signals, etc. For that reason, in 1980 Shanghai began the gradual preparation for and transformation to development of integrated networks.

In order to solve Shanghai's problem of system unification, we designed especially a new model cross exchange, the model SH-1, which has seven digit dialing capability, conforms to internationally ruled signal modes, and which can completely coordinate the various exchanges in Shanghai and is suitable to be a collection exchange. There are already 60,000 of these exchanges in operation, and it will gradually replace the collection functions of rotating exchanges. As for the signal modes throughout the network, we are trying our best to reduce the retransmitted pulse signals and expand extended multi-frequency mutually controlled signals. After adopting the model SH-1 exchange as primary collection equipment there were obvious systematic and overall

improvements in the network. In the current upgrade of the network by one digit, the model SH-1 exchange is not expected to need great changes, but the other systems used in the network cannot help but need great technical alteration.

The development of communication networks from analog to digital is a natural trend. Shanghai is actively building a comprehensive digital communications project with imported equipment, which is expected to be in production by year's end. Everyone knows, perhaps, that to introduce a digital network into a complicated analog network system is very difficult technologically. Because of adjustments to the Shanghai Municipal network over the past few years, some of those difficulties have been simplified. We have recently built a digital network centered on an S-1240 program controlled exchange, in which the CCITT No 7 signal is used exclusively between digitally equipped offices, while connections between digital offices and the original analog offices are linked throughout with multi-frequency mutually controlled signals (MFC) and digital type circuit signals. Because the signal modes are the same, the greater part of technical work has been simplified, which allows a reduction in foreign currency expenditure for imported work and shortens the engineering schedule.

The price structure of digitally controlled exchanges shows that the proportion occupied by its selective exchange section is rather low. What is especially worth pointing out is that if an ordinary two-wire exchange is organized in a metropolitan telephone network with overflow re-routed to highly efficient collection networks there will be a nearly insurmountable difficulty, namely, an attenuated allocation problem due to repeated transmissions by the collection network. Collection by digital exchanges uses four wires, so there will not be the deterioration of transmission quality due to increase of collection points when digital exchanges add digital transmissions, nor will attenuators need to be added. However, in order to prevent loop singing and quasi-loop singing (or to prevent an echo effect in long distance communications), 3.5 dB attenuators are inserted in the four-wire analog transmission sections. Figure 1 shows the currently prescribed attenuation allocation situation in Shanghai.

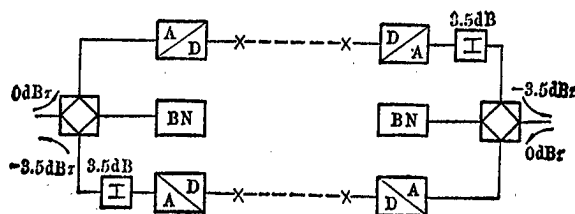


Figure 1. Attenuation allocation for digital collection transmissions.  
The X in the figure indicates digital exchange sites.

Based on the reasons described above, in the future we ought to do our best to

use digital exchanges, whether for urban telephone networks or for county telephone networks. Use of cross exchanges for collection equipment ought to be restricted. Of course, if we use digital exchanges there are many things to be taken into account, first of which is foreign exchange, then applications to import items, and another difficulty is resolving the problem of coordination of collection signals. Lacking these conditions, we must of course use cross exchanges.

### III. Fee Policies and Multimetering

The Ministry of Posts and Telecommunications has determined that the service area within a city will in general not exceed a 15 km radius. The reason for this rule is primarily concerned with the fact that after expansion of an urban service area circuits will tend to become complicated, and investments in instruments and line equipment will cumulatively increase. If we want to ensure that each communications target raises its own operating costs, then if we charge according to a monthly system or simple metering service, there will be no profit and might even be loss. The complete area of coverage for Shanghai Municipality is 6,000 sq km. The furthest distance from the center is more than 80 km. The present situation is for the urban area and counties to each separately set up networks. Urban to county and county to county communications are basically handled by long distance personal handling. But looking from the view of developing trends in world communications, large metropolitan areas ought to form single unified communications networks. This allows both ease of use to the subscriber and makes economic management more reasonable. There are no great technical difficulties in forming one system from the Shanghai communications network. The primary problem to be solved is to change the current monthly or simple metering service charging to use of a "multimetering" method based on distance of communication and time of communication. Multimetering is an effective measure by which to ensure both that the subscribers assume a reasonable share of expenses and that effects of network expansion are not felt. England, Japan, and other European countries have been using the multimetering for years. Their multimetering relies chiefly upon implementation of electro-mechanical technology in analog exchanges. The majority send out periodic pulses of differing frequencies on trunk lines of different collection directions. In general, digital program controlled exchanges have double measured service capabilities and can alter charging mode or rate at any time through software. Since the key to Shanghai's expanded network is in full-scale application of multimetering throughout the city, there must be changes in the current various electro-mechanical exchanges. Using either minicomputers or microcomputers to handle billing information and output billing data is an important topic for study, and there are already initial results on this subject, and in fact the system has been in use in one branch for more than a year. The full scale expansion project will require 2-3 years. Therefore, it is expected that by 1987 multimetering will be in full use in Shanghai.

On the one hand, multimetering brings about the conditions for network expansion, and on the other hand is suited to restraining time spent in conversation and reducing switch demands. Of course, we should not use multimetering to randomly increase the subscriber's burden. Based on our initial investigations, less than 20 percent of calls within the city exceed 3 minutes. If certain unnecessary delays are reduced, there is no difficulty



4. A typical transmission attenuation allocation scheme for Shanghai's analog exchange subscribers going through several digital exchange collectors has been suggested, as per figure 3.  $S_1$  and  $S_2$  in the figure represent the originating and receiving callers in urban analog exchanges;  $A_1$  and  $A_2$  represent analog branch exchanges;  $B_1$  and  $B_2$  represent analog sections, including PCM dual use equipment; CD represents digital collection exchanges.

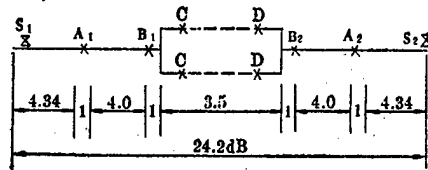


Figure 3. Urban telephone transmission attenuation

5. Figure 4 is a recommended transmission attenuation allocation scheme for county and rural telephones going through several digital exchanges. In the figure,  $S_1$  and  $S_2$  represent subscribers in the cities proper of county seats or important townships;  $R_1$  and  $R_2$  represent rural telephone subscribers;  $A_3$  and  $A_4$  represent township and village analog telephone switchboards;  $B_3$  and  $B_4$  represent central exchanges for county centers or important townships. Analog exchanges also include PCM dual use equipment;  $X$  and  $Y$  represent attenuation in rural telephone lines and trunk attenuation from town and township exchanges to county centers, respectively. In  $X+Y+1=12$  dB,  $X+Y=11$  dB, the particular allocations of  $X$  and  $Y$  are based on determinations based on the actual situations in the various counties.

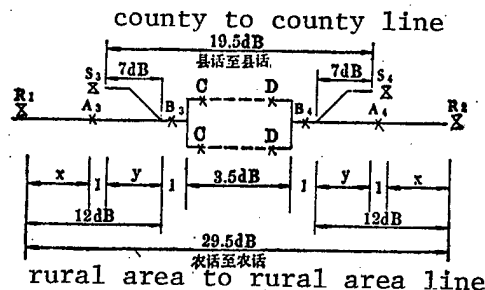


Figure 4. Suburban county telephone transmission attenuation

The county and rural telephone transmission attenuation allocation scheme expressed in figure 4 needs to be further studied. Because distances are long in county telephone communication the echo effect tends to be more obvious. In order to improve transmission stability and ensure the quality of telephone sound, data, and graphics communication we must go further in adding interposed attenuation to four-line adaptor sections. The first method for improvement is to increase 3.5 dB to 7 dB, at the same time allowing  $X+Y$  to be reduced from 11 dB to 9.5 dB, which keeps rural phone to rural phone global attenuation less than 30 dB. Another method is to change to a method of compensating attenuation. Interpose a compensating attenuator in exchanges in

town proper nearest to subscriber lines, allowing net attenuation for subscribers in the city proper to be not greater than 7 dB, nor less than 2 dB.

#### V. As for the Numbering System

Since Shanghai began six digit dialing in 1957 it has basically used a whole network unified equal position system. This kind of number system is also called a closed numbering plan. Its characteristics, besides equal positions for all subscriber numbers, also requires that from wherever one calls a particular subscriber, one is only permitted to use the same calling number. As we develop into seven digit dialing, it would appear that we should maintain this characteristic, that is, the equal position system characteristic.

The first two positions in six digit numbers, PQ, indicate the exchange number, and the last four digits ABCD represent the 1000's, 100's, 10's, and 1's places, respectively, of the particular subscriber's number. The Ministry of Posts and Telecommunications has determined that position P is 0 as a long distance prefix and that P is 1 as a symbol of special business. So, with the exception of P as 0 or 1, there are 80 possible exchange numbers in the two positions PQ. The greatest capacity of each exchange number is 10,000. According to calculations of current development speed, by the end of the Seventh 5-year Plan, the urban area will have used 62 exchange numbers, and at the very least, the suburban and county areas will use another 12 exchange numbers for a total of 72 exchange numbers. In order for the network to maintain an organizational vitality it would not be best to wait until all exchange numbers have been used up before extending the number of digits. Therefore, before 1988 or 1989 at the latest, we must change the six digits in this telephone network to seven digits. At that time exchange numbers can have the three positions, RPQ. To avoid excessive changes in the equipment used in Shanghai, the first position, R, will be limited to the four numbers 3,5,7,9 (R=0 is a long distance prefix, R=1 is for special business). Three hundred exchange numbers in the city will use 3,5,7 at their beginning and 100 exchange numbers in the outlying areas will begin with 9, for a total of 400 exchange numbers. Designation capacity for the whole city could reach 4 million telephones.

There is a great degree of difficulty in implementing a seven digit dialing system. The engineering is very complicated, as it involves more than 70 long distance, urban, and county telephone systems, with both digital and analog systems. Exchange data must be regenerated for the former, and for the latter there must be a thorough technical revamping. Because this project involves the changing of 100,000 subscriber numbers throughout the city, when preparations for the project are complete it must be a one-time switch, with no place reverting back to six digit dialing. Therefore, implementing seven digit dialing will need at least 4-5 years of technical and engineering preparation and must have no risk at all. In fact, study on seven digit dialing has already begun, and the important tasks for the future are formulating a revision plan for various equipment, carrying out extremely meticulous circuit experiments, and finally formulating intensive, incisive steps for implementing seven digit dialing throughout the network.



## VI. Building a Comprehensive Professional Digital Communications Network

Using the first imported digital transmission equipment, with S-1240 based digital exchange equipment and a biquadratic optical fiber system within it, in 1985 Shanghai will form a digital network that superimposes with the analog network. The scale of this digital network is quite impressive. Added to the PCM system that we have developed ourselves over the past years and the 1.8 km optical fiber communications system, this gives the Shanghai digital exchanges an overall capacity of about 20 percent of urban exchanges; digital transmission equipment will be more than one-third of urban trunk transmission overall capacity.

After we are into the Seventh 5-year Plan, Shanghai's comprehensive digital communications network added to the analog network will provide high quality, highly efficient telephone communications to subscribers, and there ought to be obvious improvements in the connect rate index and transmission quality. It will also have international direct dialing capability and direct dialing capability between major cities, as well as multiple new tasking. This will allow provision of the initial communications requirements for Shanghai's open-door policies.

During the Seventh 5-year Plan, at the same time that communications facilities in Shanghai are continuing to develop analog equipment, there will be a gradual shift of focus to digital communications. According to tentative plans within 5 years we will also develop more than 200,000 digital exchange installations and more than 100 km of 12 or 24 core optical cable. Around 1990 the Shanghai communications picture may be generally summarized as follows: there will be a great communications network within the urban area with an installed capacity of 500,000 installations, which is digital based with analog supplement. The majority of analog exchanges will be retired to terminal positions. Transmissions between urban and county areas will be completely digitized, for the most part. There will be a unified system of seven digit dialing, full scale use of the double measured service method, and the tasks of data and graphics communications will comprise a certain proportion.

Data communications are currently a rather low percentage. Primarily, this is because equipment is obsolete, scarce, and of inferior quality and cannot satisfy user requirements. It is estimated that during the period from 1986 to 1987 congestion in exchange and transmission equipment will begin to be alleviated. The urban area will use multimetering to reasonably measure communications. These conditions will allow communications departments to begin full use of 1200 baud low speed data tasking on current telephone networks. At the same time, because audio-frequency trunk cables will be opened to a limited percentage of PCM, besides being used between analog to analog exchange trunks, core lines in cables can be expected to be enriched. Consequently, the leased line mode can be used to provide users with baseband transmissions and medium and higher speed data communications. We can as well broaden and develop subscriber telegraph networks or facsimile networks. We can say that in addition to telephone communications networks to also build independent data and graphics communications networks with exchange functions would be both uneconomical and unrealistic. The trends in world communications developments and technology policies of the Chinese Ministry of

Posts and Telecommunications have all indicated that we will develop in the direction of integrated service digital networks (ISDN). The integrated digital networks (IDN) that Shanghai will build during the Seventh 5-year Plan will be an important basis upon which to progressively implement the Eighth and Ninth 5-year Plans. At the same time, for purposes of technical exploration we ought to begin by the middle period of the Seventh 5-year Plan to import for digital exchanges a small number of digital subscriber modules (DSM) and related subscriber terminals. Controlling equipment for subscriber networks will undergo on the spot testing of subscriber digitization in accordance with suggestions by CCITT concerning ISDN. At an appropriate time we will also study the establishment of public data bases and information processing centers to enable our communications networks to qualitatively and quantitatively meet the needs of building over the next 10 years and truly play an advance role.

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PEOPLE'S REPUBLIC OF CHINA

EFFECTS OF MICROWAVE ANTENNA HEIGHT ON FADING DESCRIBED

Shanghai DIANZI JISHU [ELECTRONIC TECHNOLOGY] in Chinese Vol 12, No 2,  
12 Feb 85 pp 5-8

[Article by Zhou Baoxiang [0719 0202 5046]: "The Effects of Microwave Antenna Height on Fading"]

[Text] I. Introduction

Microwave trunk transmitted television signals are broadcast via air waves. For many reasons fading always occurs during the process of propagation. There is much practical significance in selecting advantageous broadcast conditions based on the rules of microwave propagation and to improve the reliability of microwave circuits.

Under normal conditions, when building microwave circuits one selects the path, station distance, station site, and calculates antenna height and the technical requirements of equipment. However, for television stations in many places these possibilities and methods do not exist. If the site for the television station is determined first, then path and station distances are fixed, and when equipment is fixed, there is no latitude for selection.

Under these conditions one can only determine the antenna height. We have done some experiments on ensuring the strength of a received signal, on reducing microwave fading, and on improving the reliability of circuits, from which we have achieved rather good results.

II. Analysis of the Path of Propagation

The television signal of the Jiangsu Hai'an television station is sent from the Taizhou television station using the XY-SCW microwave equipment manufactured by Shanghai Plant No 101. In the course of operations from January 1983 to September 1983 we noticed frequent microwave fading, which affected television transmission. With this problem in mind we did a rough analysis and resolved existing problems.

1. Known conditions

The area between Hai'an and Taizhou is flat, and the distance between the two stations is 52.4 km. The microwave radiating antenna is placed on a

platform at the Taizhou television tower at a height of 73.3 m above sea level. The height of the Hai'an receiving antenna is 65 m. The radiating frequency is 8560 MHz, radiating power is greater than 200 milliwatts, and the transceiver dish antennas both have a gain of 37 dB.

## 2. Position of the point of reflection

The effects of terrain on electromagnetic [EM] wave propagation in the atmosphere shows up in reflection, diffraction, and dispersion. There will be mirror reflection when during transmission the EM waves encounter a smooth boundary between two different media. The primary characteristic of EM waves propagating on smooth surfaces is that direct waves and surface reflection waves will form interference fields on the receiving antenna. To find the reflection coefficients one must find the position of the reflection point on the propagating path.

When both the heights of the microwave receiving and transmitting antennas  $h_1$  and  $h_2$  and the distance  $d$  between receiving and transmitting stations are known, to calculate the position of the point of reflection one must solve a cubic algebraic equation. Since the process of solving cubic equations is quite troublesome, for engineering calculations the diagram method is often used. Below, we extract the parameter  $c$ , where  $c$  and  $m$  are coefficient ratios for antenna height.

$$c = \frac{h_2 - h_1}{h_2 + h_1} \quad (1)$$

$$m = \frac{d^2}{4Ka(h_1 + h_2)} \quad (2)$$

In the formula,  $a$  is the radius of the earth at 6370 km,  $K$  is the equivalent earth radius factor.

When microwave beams are broadcast in the lower levels of the atmosphere, the propagation path within it is curved because the atmosphere is not an even medium. After using the equivalent earth radius, the microwave beams can be handled in design according to straight line transmission. The equivalent earth radius is the product of the actual earth radius and the equivalent earth radius factor  $K$ . Under normal atmospheric conditions, generally assume that  $K=4/3$  (temperate zone) or  $K=4/3 \frac{2}{3}$  (tropical zone). Using Figure 1, one may take the values of  $c$  and  $m$  that have been found and find the value of the distribution coefficient  $b$ , and then separately use formulas 3 and 4 to find the distance  $d_1$  and  $d_2$  between the point of reflection and the points of microwave transmission and reception, as shown in Figure 2.

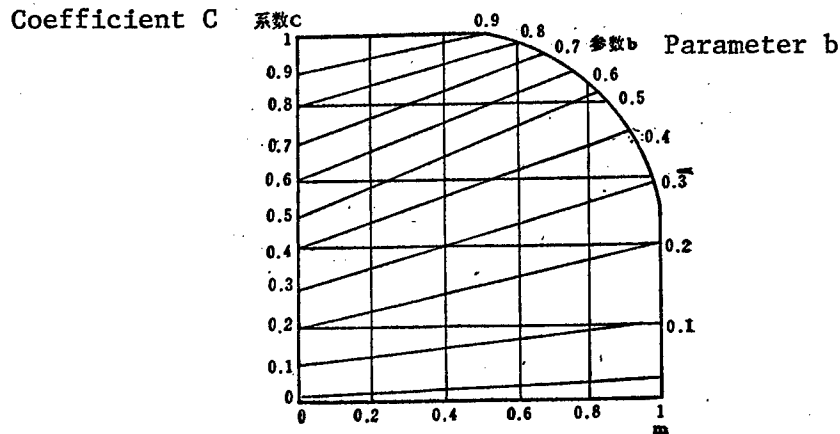


Figure 1. Curved line to determine value of point of reflection for a smooth surface.

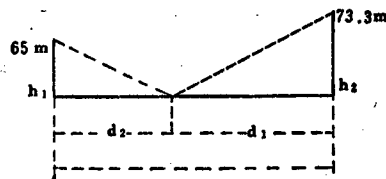


Figure 2. Schematic of microwave reflection

$$d_1 = \frac{d}{2}(1+b) \quad (3)$$

$$d_2 = d - d_1 \quad (4)$$

$$c = \frac{73.3 - 65}{73.3 + 65} = 0.06$$

Based on known conditions and assuming  $K=4/3$ , substituting into the above formula you get

$$m = \frac{(52.4)^2 \times 10^6}{4 \times 4/3 \times 6370 \times 10^3 \times 138.3} = 0.584 \quad (4a)$$

Using figure 1 and checking for  $b=0.044$ , substituting into equations 3 and 4 you get

$$d_1 = \frac{52.4}{2}(1+0.44) = 27.4 \text{ km} \quad (4b)$$

$$d_2 = 52.4 - 27.4 = 25 \text{ km}$$

Under differing conditions of refraction, the values of the equivalent earth radius factor  $K$  are different, which leads to shifting of the point of reflection on a surface. When  $K=2/3$  one can obtain  $c=0.06$ ,  $m=1.16$ ,  $b=0.062$ ,  $d=27.8$  km, and  $d_2=24.5$  km.

When  $K=2/3$  and  $K=4/3$ , the range of shift of the point of reflection on a surface is  $27.8-27.4=0.4$  km. That is, the microwave transmission reflection point from Taizhou to Hai'an shifts from a range of 27.4 to 27.8 km. Figure 3 is the distribution of chief urban areas along the microwave path. Looking at a map you can see that the area of reflection is a farm, and checking technical materials to get a reflection coefficient of 0.8, this explains that the reflection of microwaves in this area must not be ignored.

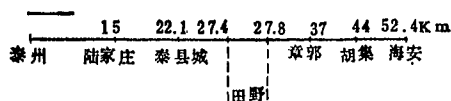


Figure 3. Geographic placement along the route

KEY: City names from left to right:

Taizhou  
Jijiazhuang  
Taixiancheng  
fields  
Zhangguo  
Huji  
Hai'an

3. The radius  $F_1$  of the first Fresnel zone and the radius  $F_0$  of the smallest Fresnel zone

The Huygens-Fresnel principle recognizes that for waves in transmission, each point on the surface of the wave is a spherical wave source carrying out secondary radiation.

Given a wave source  $Q$ , where  $P$  is a certain point at a distance  $d_2$  from  $Q$ , and taking point  $P$  as the center, make spheres using

$$d_2 + \frac{\lambda}{2}, d_2 + 2\frac{\lambda}{2}, \dots, d_2 + n\frac{\lambda}{2}$$

in succession as radius ( $\lambda$  is wavelength). These spheres intersect with the sphere  $S_0$  [sic, probably 'plane'], forming many rings. The wave paths radiating from point  $Q$  and passing through two edges of a ring to reach point  $P$  all have a progressive difference with waves going directly from  $Q$  to  $P$  of  $n \cdot \frac{\lambda}{2}$ , where  $n$  indicates the half-wave value included in  $\Delta r$  of the progressive difference. The electromagnetic energy radiated to point  $P$  from wave source  $Q$  is basically transmitted through a spatial zone enclosed by rotating ellipsoids with  $P$  and  $Q$  as their focus. This zone is called an  $n$  order Fresnel zone, or, the  $n$ th Fresnel zone. When  $n=1$  it is the 1st order Fresnel zone or the first Fresnel zone, and when  $n=2$  it is called

the 2nd Fresnel zone, and so on in a like manner. Figure 4 shows this. In order to obtain free space propagation one must ensure that a certain Fresnel zone is not obstructed. This zone is a free space that plays an important role in free space propagation of EM waves.

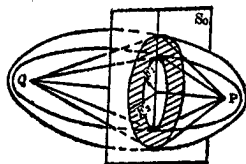


Figure 4. Fresnel zones in microwave propagation.

$F_1$  and  $F_0$  are defined as:

$$F_1 = \sqrt{\frac{\lambda d_1 d_2}{d}} \quad (5)$$

$$F_0 = 0.577 F_1 \quad (6)$$

Substituting known data in formulas 5 and 6 we get

$$F_1 = \sqrt{\frac{0.035047 \times 27.4 \times 25}{52.4}} = 21.406 \text{ 米}$$

$$F_0 = 12.351 \text{ 米}$$

#### 4. Propagation clearance $H_c$

Propagation clearance is the difference between beam center height and the height of a surface obstruction, where propagation clearance  $H_c$  is represented by the formula

$$H_c = h_1 + (h_2 - h_1) \frac{d_1}{d} - \frac{d_1 d_2}{2ka} - H_s \quad (7)$$

In the formula,  $H_s$  is the height of the highest point of terrain. Substituting known conditions one can get:  $H_s = 25$  m. Based on the Fresnel concept, one divides propagation circuits into three types:  $H_c > F_0$  is called a closed circuit. Among them, only open circuits can attain the signal strength for free space propagation.

#### 5. Calculation of fading factors

The field strength at the microwave point of reception is the result of the interference of straight waves and reflected waves. Given a free space propagation field intensity of  $E_0$ , and actual receiving field intensity of  $E$ , then the ratio  $E/E_0$  is called the fading factor  $V$ . During actual calculations it is common to represent the fading factor  $V$  in dB.

$$V = 20 \log E/E_0 \text{ dB} \quad (8)$$

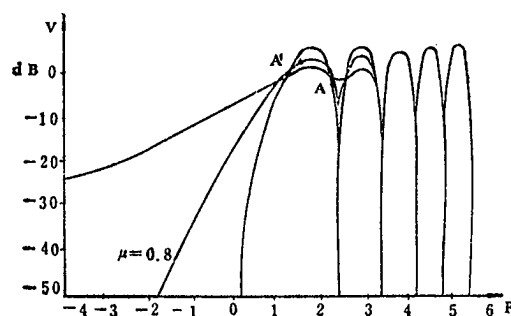


Figure 5. Calculation chart for fading factors

In engineering design one may use the curved line  $P-V$  in Figure 5 to calculate the fading factor, where  $P$  is the ratio of the radius of the smallest Fresnel zone and the clearance. This is called relative clearance, that is,

$$P = H_o / F_o \quad (9)$$

This value is affected by the microwave transceiver antenna height, weather, etc. Under the conditions mentioned above,  $P = 25 / 12.4 = 2.03$ . One can see from Figure 5 that when  $P > 1$ , the fade coefficient will have its greatest and least values, that is,  $V_{\max}$  and  $V_{\min}$ . As the interference number increases the gap between the smallest value narrows. This shows that there are great changes in the fade coefficient  $V$ . Near the smallest value changes in  $V$  are extreme, which also explains that very small changes in clearance will cause great fading. Based on the results of calculating the value of  $P$  above, point A corresponding to  $P$  value to the right side of the wave lobe is not an ideal working point. It is even so that during great changes in weather along the microwave propagation path from Hai'an to Taizhou, especially after the sun goes down, the soil quickly loses heat, which causes a rapid drop in the temperature of atmospheric layers near to the ground, while temperatures at upper layers drop more slowly. This causes the vertical gradient of the corresponding dielectric [coefficient epsilon] to be less than 0, which approximates the right shift of the value of  $P$  toward the  $P-V$  curve, and even makes point  $P$  enter an area of deep fading, which causes television program broadcasts to be unstable or to be interrupted.

### III. The Effects of Interference Fields

When directly radiated microwaves coincide with reflected waves on the receiving antenna, there is a phase difference when they arrive at the antenna because both waves have taken different paths, which causes interference fields. The resultant vector is randomly variable, it changes with the changes in the conditions of propagation, as shown in Figure 6.



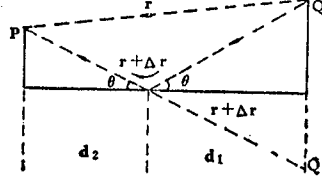


Figure 6. Electric waves bouncing off the ground

The field intensity of directly radiated waves in location P is

$$\sqrt{\frac{60PD}{r}} e^{-jk r} \quad (10)$$

The field intensity of reflected waves at location P is

$$\sqrt{\frac{60PD}{r + \Delta r}} R e^{-jk(r + \Delta r) - j\beta} \quad (11)$$

In the formulas above, P is the antenna radiating power, D is the antenna direction coefficient,  $\Delta r$  is the progressive difference, and k is called the propagation constant. Adding the two together, both because the angle  $\theta$  is very narrow and omitting the difference between r and  $r + \Delta r$  of the amplitude, one gets the composite field of

$$\sqrt{\frac{60PD}{r}} e^{jk r} [1 + R e^{-j(k \Delta r + \beta)}] \quad (12)$$

As we said before, given a free space propagation field intensity of  $E_0$ , and actual field intensity at reception of E, then  $E = E_0 V$ , and the fade factor is  $V = E/E_0$ . Therefore, calculating the ratio of the two from equation (12),

$$E/E_0 = \left[ 1 + R^2 + 2R \cos \left( \frac{2\pi}{\lambda} \Delta r + \beta \right) \right]^{\frac{1}{2}} \quad (13)$$

In the equation: R is the mode of the reflection coefficient of the horizontally polarized waves or the vertically polarized waves,  $\beta$  is the phase-shift during reflection, and using equation (8) one can calculate the fade factor of the interference fields.

Because n is the half-wave value contained in the progressive difference  $\Delta r$ , that is  $\Delta r / 0.5 \lambda = A$ , then  $\Delta r = n \pi \lambda$ . When n is odd,  $V_{\max} = 1 + R$ , when n is even,  $V_{\min} = 1 - R$ , and when  $V = 1$ , it indicates that the composite field is equal to field intensity of free space. This is due to the consequences of interference at the receiving point P of direct waves and reflected waves. From Figure 7 we can obtain

$$r = [d^2 + (h_2 - h_1)^2]^{\frac{1}{2}}$$

$$r + \Delta r = [d^2 + (h_2 + h_1)^2]^{\frac{1}{2}}$$

Subtracting the two formulas above from each other we get  $\Delta r = 2h_1 h_2 / d$ , and then from which we get

$$\begin{aligned} \frac{2\pi}{\lambda} \cdot \Delta r &= \frac{2\pi}{\lambda} \cdot \frac{2h_1 h_2}{d} = n\pi, \text{ 即得} \\ \frac{\Delta r}{\lambda/2} &= \frac{4h_1 h_2}{\lambda d} = n \end{aligned} \quad (14)$$

From equation (14) we know that when  $\lambda$ ,  $d$ , and the height  $h_2$  of the transmitting antenna have been determined, the height of the receiving antenna may not be double the even number  $\frac{\lambda d}{4h_2}$ , to avoid making the field intensity at

the receiving point be placed at the smallest value in the interference chart. Figure 7 is the state of the  $E/E_0$  change when the receiving antenna height  $h_1$  changes, so we can account for the height of the Hai'an television station antenna with the theory mentioned above.

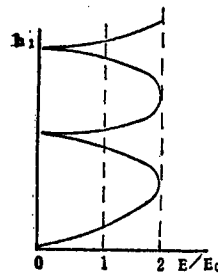


Figure 7. Interference fields as antenna height changes

The Taizhou transmitting antenna is 73.3 m high, and the former height of the Hai'an receiving end was 65 m,  $d$  is 52.4 km, thus

$$\frac{\lambda d}{4h_2} = \frac{52.4 \times 10^3 \times 0.03505}{4 \times 73.3} = 6.26$$

$$n = \frac{h_1}{6.26} = 10.38$$

We can see from this that when the original Hai'an receiving antenna height was 65 m, the receiving field intensity was in a poor position in the interference chart. When we calculate on the basis of equation (14) to obtain  $h_1$  as 63 m, the receiving field intensity is placed at the smallest value of the interference chart. Figure 8 shows that the receiving field intensity has a petal-shaped structure, so when  $h_2$  has been determined the following formula can be used to find the difference in the smallest values of the corresponding adjacent two interference fields,

$$(\Delta h_1)_{\min} = \frac{\lambda d}{2h_2} = 12.5 \text{ m}$$

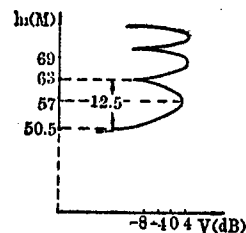


Figure 8. Interference fields of the Hai'an station

Between the corresponding two smallest values is the greatest value of the interference field, thus  $12.5/2=6.25$  m, that is, when the 63 m height of the receiving antenna is raised or lowered by 6.3 m, it allows the field intensity of the receiving point to be placed at the greatest value for interference fields.

To explain the effect of raising and lowering  $h_1$  on fading, we calculate as follows:

1. When  $h_1=69.25$  m and  $h_2=73.3$  m, if we get  $F_1=21.42$  m,  $F_0=12.36$  m,  $H_c=26.98$  m,  $P=2.18$ ,  $n=11$ ,
2. When  $h_1=57.3$  m and  $h_2=73.3$  m, we get  $F_1=21.25$  m,  $F_0=12.25$  m,  $H_c=21.76$  m,  $P=1.8$ , and  $n=9$ ,

which are ideal operating areas. In Figure 5, A' is the operating point of  $P=1.8$ , while A is the operating point of  $P=2.18$ , thus A' is more stable than A.

#### IV. Comprehensive Analysis

The size of  $H_c$  is determined by the Fresnel zone number that is allowed to pass, and  $n$  may be seen as the Fresnel zone number of the propagation clearance that has passed through the reflection point, and its value being odd, the field intensity is greater than that of free space. When the height  $h_1$  is lowered, the point A' corresponding to the value of  $P$  is on the left of the wave petal. Comparing them, it appears they would not easily enter the deepest fade zone. Lowering  $h_1$  then increases the height difference between transmitting and receiving antennas. Fresnel zone ellipsoids are inclined. If  $F_1$  is reduced where near the surface, the surface will not easily extend into the first Fresnel zone, and when propagation conditions change making the value of  $K$  change, this will avoid diffraction fading.

At the same time, when inverse layers in the atmosphere produce atmospheric ducts or mutant layers produce reflection, there will be multi-path propagation. Because of the progressive difference and that differing conditions of reflection of EM waves create phase difference, this forms interference fields on the antenna, and creates multi-path interference fading. But inclined propagation paths do not as easily produce multi-path propagation as do horizontal paths. We can see from the formula  $\Delta r=2h_1h_2/d$  that when antenna height is high, the progressive difference  $\Delta r$  is greatest, and during inclined propagation the progressive difference is less. When the clearance  $H_c$  is reduced, that allows waves deviating from the chief propagation paths<sup>c</sup> to be easily blocked, and to not easily cause multi-path propagation. Multi-path propagation is one of the most important factors causing fading. Based on the theoretical analysis above, we decided to lower the height of the receiving antenna, which was beneficial in improving the quality of television broadcasts. We also obtained results, the data from our experiments shown in tables 1 and 2.

Table 1. Test results from 1 Apr to 10 Apr 1983 ( $h_1=65$  m)

(a) 日期	1	2	3	4	5	6	7	8	9	10
(b) 衰落次数	3	1	4	2	4	5	1	2	5	6
(c) 载频指示	7	8	7	6	7	6	6	8	7	5

KEY: (a) Day  
 (b) Fading occurrences  
 (c) Carrier frequency index

Table 2. Test results from 1 April to 10 April 1984 ( $h_1=56.7$  m)

(a) 日期	1	2	3	4	5	6	7	8	9	10
(b) 衰落次数	无	1	无	无	1	无	1	无	1	无
(c) 载频指示	18	16	17	18	15	16	15	17	16	19

KEY: [same labels as Table 1; character may be rendered as  $\emptyset$ ]

Comparing records in the two tables, after lowering the antenna there was an obvious improvement in the carrier frequency index, which may be seen as a reference value for reception levels, proving that reception field intensity has been improved over that of before. It is obvious that microwave antenna height is important data for design of microwave circuits. Selecting the correct microwave antenna height is of practical significance for reducing microwave fading. It is also beneficial to improving the stability and reliability of microwave circuits.

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12586

CSO: 5500/4140

VIETNAM

COMMUNICATION BETWEEN LOTUS 2, INTERSPUTNIK ESTABLISHED

Hanoi NHAN DAN in Vietnamese 25 Apr 85 p 1

[Text] VNA--After nearly 6 months of construction, the building of satellite ground station "Lotus 2" has been basically completed and its equipment installed on schedule. Together with the Soviet specialists, the Vietnamese workers and cadres have completed the final technical tasks to ensure normal communications between the station and the "Intersputnik" signal network and to put this project into use on the occasion of the 10th anniversary of the liberation of south Vietnam.

This is the second satellite ground station built with Soviet aid to expand the information network to many regions in the southern zone.

Thanks to the wholehearted assistance of the Soviet specialists, this project has been built quickly with good quality. General Construction Corp No 1 of the Ministry of Building and the Ho Chi Minh Municipal Construction Service have completed the main project components such as the antenna foundation and the technical building and have handed them over to the machine installation sector on schedule. The Machine Installation Joint Enterprise of the Ministry of Building has safely installed a 12-meter diameter hemispheric antenna framework weighing 5 tons at an exact height of 11 meters.

With the aid provided by the Ho Chi Minh City during the construction process, the Posts and Telecommunications Department has adopted a rational construction plan and located the project in the center of the city, which has enabled to save over 70 million dong of capital investment in construction and installation as well as a large amount of foreign currency and equipment in comparison with the expenditures envisaged in the initial construction plan. All units in the sector have taken delivery of equipment and transported it quickly, completely and safely. Together with the Soviet specialists, technical cadres of the sector have accurately installed more than 100 tons of equipment of all kinds and put it into normal operation.

Simultaneously with the "Lotus" station center, a system of communication lines has also been completed to connect all information centers with the "Intersputnik" system.

VIETNAM

CONSTRUCTION OF SATELLITE GROUND STATION BASICALLY COMPLETED

Hanoi NHAN DAN in Vietnamese 25 Apr 85 p 3

[Article by Hoang Ban, deputy director of Posts and Telecommunications Department: "An Outstanding Labor Achievement To Celebrate the 30 April Anniversary--Station 'Lotus 2'"]

[Text] On the occasion of the 67th anniversary of the great October Revolution, the first stage of Soviet-aided construction of satellite ground station "Lotus 2" in Ho Chi Minh City has been basically completed, making it possible to put this project into operation just in time to celebrate the 10th anniversary of the complete liberation of South Vietnam and of national reunification (30 April 1985), as initially planned. This is an important state-level project aimed at meeting political, economic and cultural requirements--especially the need to exploit oil and natural gas on the southern continental shelf--and scoring achievements to greet the International Labor Day on 1 May 1985 and to celebrate the 40th anniversary of the victory over fascism, the 115th birthday of Lenin the great and the 95th birthday of venerable and beloved President Ho Chi Minh.

Right at the beginning of 1984, by virtue of a signed agreement on Soviet aid to Vietnam to build this station, the Vietnam Posts and Telecommunications Department and the Soviet Ministry of Posts and Telecommunications actively started the tasks necessary to the building of this project. With the wholehearted assistance rendered by the Soviet specialist delegation, by party and people's committees at all echelons, by the sectors concerned in Ho Chi Minh city and the Vung Tau-Cong Dao Special Zone and by various ministries and sectors concerned at the central level, many units subordinate to the Posts and Telecommunications Department urgently carried out all the necessary tasks such as survey, planning, technical explorations, construction procedures and the formulation of task execution and protection plans, and so forth.

The pictures showing Do Muoi, member of the party Central Committee and vice chairman of the Council of Ministers, representing the Vietnamese side, and V.I. Dolgikh, representative of the Supreme Soviet of the USSR, alternate member of the Politburo, secretary of the CPSU Central Committee and head of the USSR Supreme Soviet delegation visiting Vietnam--both of whom attended the ceremony marking the beginning of this project construction, signed the

golden book and jointly laid the first foundation stone of the station--and the pictures showing the ceremony in which the Vietnamese cadres and workers and the Soviet posts and telecommunications specialists delegation pledged to emulate in building the station made a profound impression on the units participating in construction and further inspired them with enthusiasm and solidarity in performing labor.

The cadres and workers of Machine Installation Enterprise (General Construction Corp No 1) and Machine Installation Enterprise No 18 (Ministry of Building), from commanders down to simple laborers, worked day and night, organized and built houses and stations, transported nearly 150 tons of equipment, dug out and piled up hundreds of cubic meters of earth, installed nearly 1,000 meters of power cables, carried out maintenance, control and management according to technical regulations and installed signal and television equipment, mirror antenna towers, microwave devices, electric power sources and thermal and lighting power regulators; they did these jobs with absolute safety and technical quality and finished them many days ahead of schedule. These tasks provided favorable basic conditions for cadres and workers of Posts and Telecommunications Construction Corp No 2 to excavate and pile up earth and to install medium-frequency signal wires between the satellite station and the television stations and telegraphic and telephonic centers in Ho Chi Minh City and Vung Tau-Con Dao. Cadres and workers of the Electricity Corp (Ministry of Power) urgently built electricity networks to operate the satellite and microwave stations while those of the Ho Chi Minh municipal water input and outlet service rapidly built a water input and outlet network to serve the project. These tasks met technical requirements and were completed ahead of schedule.

A bright example was set by the Soviet posts and telecommunications specialists delegation from delegation head M.V. Alexandrov to more than 10 other specialists (some of whom had previously helped Vietnam build station "Lotus 1"). The delegation was composed of many groups responsible for antenna, picture reception and transmission, telephonic and telegraphic equipment, testing and measuring, power sources and thermal regulation. They considered work in Vietnam to be a task in their own country, were constantly present at the worksite, spared no effort, displayed wholeheartedness, guided the Vietnamese cadres and workers and simultaneously and directly set their hands to work in the open air regardless of a scorching sunshine and irregular meals and sleep and continuously exhorted the Vietnamese cadres and workers to learn, to follow their example and to carry out tasks satisfactorily.

These great collective efforts brought about a heartening result. On 2 April 1985, the installation of the integrated signal equipment of the station into the parabolic mirror antenna stand at a height of 12 meters was completed. On 13 April 1985, the equipment network of the station successfully received news and pictures transmitted from the Soviet Union to Ho Chi Minh City. At the present moment, the entire first-stage construction of satellite ground station "Lotus 2" has been basically completed according to the technical plan.

As with station "Lotus 1," from now on, the various types of signal emitted by station "Lotus 2" will be received and retransmitted to other countries and vice versa by the earth satellite "Stationa 5" of the "Intersputnik" international satellite system, thereby bringing to us many news, pictures and voices of our friends in the five continents. Owing to this station, from now on, the information, broadcasting and television capacities of the southern region will be reinforced considerably, information between the north and south will be expanded in an important measure and more reliable information will be obtained concerning flood and typhoon control; it must be noted that the relationships of international information will be developed to a new level. The above-mentioned result has been obtained because we have drawn valuable experiences from the building of the station "Lotus 1" project, because the Soviet Union has wholeheartedly aided us through the direct participation of the Soviet posts and telecommunications specialists delegation, because of the assistance given by the posts and telecommunications, building and electricity sectors, because forces have been concentrated on this project, because we have won the cooperation and great assistance of many localities, especially Ho Chi Minh City, and because of the coordinated and active support provided by many sectors at all levels. This has created an aggregate strength enabling us to concentrate and synchronize efforts to completely finish each and every stage and work by providing guidance according to the PERT system and by exercising command as if in a military campaign.

This is really a great collective project, a precious product and a brilliant illustration of Vietnamese-Soviet solidarity and friendship full of socialist internationalism. It has helpfully given Vietnam a lot of useful experiences in ideology, organization, construction, technique, specialties and posts and telecommunications management; it will further strengthen and stabilize Vietnamese-Soviet relations more comprehensively for a long time to come and will further consolidate and develop the two countries' cooperation and assistance in the field of posts and telecommunications. It is also an architectural work of high cultural value which will further beautify Ho Chi Minh City, especially the municipal children's garden.

Inagurating station "Lotus 2" will be a great festival not only for the Vietnamese posts and telecommunications cadres and workers but also for their couterparts in the fraternal countries.

The Vietnamese posts and telecommunications personnel take this opportunity to convey their warm greetings and deep gratitude to the CPSU, the Soviet government, the fraternal Soviet people and the Soviet comrades and colleagues. We hope that the Soviet people and the Soviet posts and telecommunications personnel will continuously win new success in building socialism and defending peace and that the relationships of cooperation and assistance between Vietnam and the other fraternal socialist countries will become ever more consolidated and developed.

Based on the success of the first construction stage, we will manage and use the station installations and equipment most satisfactorily, effectively meet information, broadcasting and television requirements in strict



accordance with the designed mission, simultaneously continue to build the remaining project components, ensure completion of the second construction stage and finish the entire satellite ground station "Lotus 2" project according to economic and technical requirements in order to be worthy of the higher level's and the people's trust and of the great, precious, overall and effective cooperation and aid of the Soviet Union.

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CSO: 5500/4334

VIETNAM

BRIEFS

VUNG TAU TV RELAY STATION--The post and telegraph office of Vung Tau-Con Dao special zone and the construction team of the Lotus-2 earth satellite station have begun the construction of a microwave television relay station in Vung Tau-Con Dao. This project is aimed at providing news and information to Soviet oil and natural gas specialists and Vietnamese workers and people in the area. Workers are accelerating work to complete this project before the SRV national day, 2 September. [Summary] [Hanoi Domestic Service in Vietnamese 1430 GMT 18 Jun 85 BK]

CSO: 5500/4340

CANADA

## NORTHERN TELECOM TO TRIPLE RESEARCH SPENDING

Toronto THE GLOBE AND MAIL in English 26 Apr 85 p B13

[Article by Roger Newman]

[Text]

Northern Telecom Ltd. of Mississauga, Ont., will triple research spending by investing more than \$4-billion in the development of information and communications systems during the next five years, according to E. B. Fitzgerald, the company's president.

Mr. Fitzgerald, speaking to the annual meeting in Winnipeg, said the \$4-billion — which compares with \$1.3-billion spent on research from 1980 to 1984 — will be used to develop advanced voice and data transmission services and networks.

He said the extra investment will enable Northern Telecom to maintain its international lead in the digital telecommunications industry and permit its customers, such as telephone utilities, to introduce a wealth of new services for customers.

"Northern Telecom faces increasingly competitive and turbulent local markets," he told shareholders. "However, turbulence and dynamic markets, particularly those caused by the

pace of advancing technology, can create opportunities for those able to act quickly to pursue them. We are confident that the results of our research investments will be evident in future, as those of the past are evident today."

Walter Light, retiring chairman of the company, said Northern Telecom has increased its investment in research and development tenfold in the past decade, currently allocating 10 per cent of revenue to R and D and employing more than 4,000 people in its laboratories.

But he strongly criticized Canada's total commitment to R and D, saying that spending has increased little in the past 10 years. "While we debate, contemplate, procrastinate and deteriorate, other countries are moving into and securing our markets," he said. "In the past few years, I have raised the research issue almost every week somewhere in Canada. I regard the lack of real advance in this area as one of the failures

of my business career."

Mr. Light also suggested Canada should establish an academy of international trade to teach about the differences between doing business in North America and overseas countries. He said Canadian companies are losing a lot of orders because their executives fail to understand the nuances of international trade and are unable to speak the languages of their prospective customers.

"We must drop the ridiculous debate on bilingualism and accept that multilingualism separates winners from losers in world markets," Mr. Light said.

Mr. Fitzgerald, who will succeed Mr. Light as chairman, said Northern Telecom anticipates a record year, with at least 20 to 25 per cent growth in revenue and profit per common share. In 1984, the company had sales of \$4.3-billion and a profit of \$317.4-million, compared with \$3.3-billion in sales and \$268.4-million in profit a year earlier.

CSO: 5520/41

CANADA

## TWO CONTRACTS LET FOR STUDY OF SURVEILLANCE SATELLITES

Toronto THE SATURDAY STAR in English 27 Apr 85 p A5

[Text]

OTTAWA (CP) — Ottawa has made the first moves toward its obligations under the northern defence pact with the U.S. by launching studies into the feasibility of space-based radar surveillance satellites, Canadian Press has learned.

Two scientific contracts, valued at about \$950,000 each, for the North Warning System have been filed by the defence department.

Spar Aerospace Ltd. of Toronto and Canadian Astronautics Ltd. of Ottawa will carry out the studies along with companies in the United States.

The system is to replace the aging Distant Early Warning (DEW) line. Canada is to contribute \$600 million toward building the \$1.6 billion North Warning system.

Spar vice-president Chris Trump said the "space-based surveillance radar concept and feasibility study" will examine what technology is available now, what needs to be developed in Canada over the next 10 years, and the means of putting the technology together to make the system work.

Although there are many surveillance satellites, the new devices will be far more accurate in the observation of low-flying objects.

"These satellites will observe low-flying aircraft and missiles, especially ground-huggers such as the cruise missile," Trump said in an interview.

Trump said Spar is operating as lead company on one of the deals, co-operating with five other companies. He could offer little other information on the contracts because of sensitivity in the U.S. and Canadian defence departments concerning information leaks about the highly-secret defence systems.

But he said Canada should be able to supply almost all the components of the North Warning system, including satellites and ground-based receivers. Spar and other Canadian companies already have advanced expertise in remote sensing and telecommunications technology, two essential ingredients of the new warning system.

David Keyes, who supervises space science contracts for the department of supply and services, said identical contracts were awarded to Spar and Canadian Astronautics so the defence department could get ideas from a variety of sources.

The two studies also will identify possible industrial benefits for Canadian companies, Keyes said.

CSO: 5520/41

CANADA

## USE OF SATELLITES TO MONITOR, CONTROL TRAINS PROJECTED

Toronto THE GLOBE AND MAIL in English 29 Apr 85 p B19

[Article by Ken Romain]

[Text]

North American railways are reaching into space to help them control their trains on the ground.

Recognizing that they have gone about as far as they can go with rail technology developed in the 1960s and 1970s, the railways are preparing to combine satellites, electronics, computers and telecommunications in an advanced train control system to maintain productivity growth.

The price tag could range as high as \$10-billion during the next 10 years. Trial demonstrations of the new operating methods are to begin by the end of next year. About 200,000 miles of track could eventually be adapted to the new control system at a cost of \$45,000 to \$50,000 a mile.

The project foresees the use of radio signals bounced off satellites to monitor the speed and location of trains, or the adoption of air navigation principles, such as Loran (long-range navigation) or inertial navigation, and

the practices of air traffic control, to allow railways to control the speed and movement of their trains more efficiently.

The purpose is to improve the rail network, enable it to expand to meet future traffic growth, and enhance safety by more secure and certain control.

"But to do that we have to know precisely what the trains are doing at all times, where they are, at what speeds they are travelling, slow them down or speed them up. The instruments in the cab of a locomotive will be much the same as the instruments in the cockpit of an aircraft," said Peter Detmold, general manager of the Advanced Train Control Systems Project and a special consultant to Canadian Pacific Ltd. of Montreal.

It is not pie in the sky, he said. "The participating railways are absolutely serious about this and we are under great pressure to get on with it."

The system, he said, will make possible new control techniques for computing the most favorable sequence of train operations over a section of track.

It will transmit those decisions from a control point to the train over long distances, displaying the data, recording them, acknowledging the decisions and, if necessary, enforcing them by stopping the train.

"What is the use in having a train running at full speed only to arrive at a passing point and waiting an hour or more there for another train to arrive before proceeding.

"It is a wasteful way to operate trains. We could slow that first train and save fuel and wear and tear, or delay its entry into the system, or tell the other train to speed up."

Some sections of busy track have as many as 20 trains a day both coming and going over a 300- to 400-mile distance, Mr. Detmold said. This could work out to as many 400 "meets" or passing

points a day. No dispatcher could work these out efficiently in his head.

He needs a computer working to a simulated plan, knowing precisely where the trains are, what speeds they are travelling at, whether they are going forward or backing up, the "health" of the train, the condition of the track bed, all of which would be continuously monitored under the advanced system.

Eleven railways are taking part in the program. The four in Canada are: CP Rail, CN Rail, Algoma Central Railway and British Columbia Railway. The seven in the United States are: Burlington Northern Inc., Norfolk Southern Corp., Seaboard System Railroad Inc., Southern Pacific Co., Union Pacific Corp., Consolidated Rail Corp. and Santa Fe Industries Inc.

"They represent a very large portion of the North American railway industry," Mr. Detmold said.

The project originates

with CP Rail and CN Rail. "We had different concepts, but we had enough common features that we decided to go shopping together," he said. The project would be too big for one railway, so other railways were approached.

In addition to the railways, more than 90 high technology companies in Canada and the United States have indicated a strong interest as potential suppliers, of which 17 are large enough to go it alone in providing a complete system to meet the written requirements of the project.

In February, the Railway Association of Canada and the Association of American Railroads awarded a contract worth more than \$1-million to Arinc Research Corp. of Annapolis, Md., to evaluate the technology available and to recommend an operating system or systems that could either be used with the present control systems of stop and go (red and green)

signals or replace them.

"We hope to have all this in place by the end of October so that we can start writing specifications," Mr. Detmold said. Decisions will have to be made on which of the recommended systems will be used. It could involve the adoption of a single technology or a combination of technologies into one system.

"We don't know yet, for each technology has its advantages and its disadvantages." The system will be modular, giving each railway a choice of combinations best suited for its routes.

Should a satellite system be adopted as a data link for train location, it would be based on the present U.S. military ground proximity satellite program.

By 1988, the United States plans to launch 18 satellites to cover the globe with radio signals. The signals will allow computers on the ground to calculate the location of a

train to within a few feet.

Although planned for military use, the system is expected to be available to commercial customers, who would build the ground equipment to tune in the satellite signals.

The satellites will continuously broadcast the precise time and their current position.

This will allow a ground-based computer, if it is on a train, to locate its own position by measuring the time the signal takes to reach it from at least four of the other satellites. It would then transmit that information back to a railway control point on the ground.

"But we could also adopt a transponder system (now used on aircraft to transmit by radio signal an aircraft's altitude and identify it to an air traffic controller on the ground) or an inertial navigation system (also used on aircraft to measure speed and location). We have some hard choices to make."

CANADA

TELESAT CANADA 1984 ANNUAL REPORT ISSUED

Toronto THE TORONTO STAR in English 3 May 85 p E4

[Text]

OTTAWA (CP) — Profits for Telesat Canada Ltd. crept upward in 1984 on the strength of increased operating revenues, the company says in its annual report.

The report, released yesterday, said operating revenues increased 24 per cent to roughly \$109.2 million in the year ended Dec. 31, from \$88.1 million in 1983. Net earnings were \$16.8 million, a \$1.4 million increase from the \$15.5 million recorded in 1983.

But the company is still struggling with markets that have not expanded at the rate expected when company officials were forecasting capacity needs in the late 1970s. The result is continuing excess satellite capacity, Telesat President Eldon Thompson said.

The company's Anik D2 satellite, launched in November, has been placed in a two-year storage orbit while it awaits customers. Telesat decided to go ahead with the launch because the U.S. National Aeronautics and Space

Administration had announced its intention to double satellite launch costs to about \$25 million.

And Telesat has not been successful in selling a surplus Anik C-series satellite and that device will also probably end up in a storage orbit pending growth in demand.

The report says use of Telesat expertise in satellite operations and consulting brought in new revenues but the company also experienced some disappointments. The government announced changes in its earth station licensing policy, weakening Telesat's monopoly position as a provider of transmit earth stations.

And Telecom Canada decided to abandon its Stratoroute 2000 project, which Telesat expected to become a growth area for revenues. Stratoroute 2000 was supposed to provide an advanced business telecommunications service using Telesat technology.

Telesat Canada is jointly owned by the federal government and the major common carriers.

CSO: 5520/41

CANADA

## CELLULAR PHONE SERVICE LAUNCHED BETWEEN TORONTO, MONTREAL

Toronto THE TORONTO STAR in English 9 May 85 p E6

[Text]

MONTREAL (CP) — "Hello, Andrew Penny speaking. Bonjour. Comment ça va?"

With this bilingual greeting, cellular radio-telephone service was inaugurated yesterday between Toronto and Montreal.

Cellular radio is a computer-controlled, digital telephone system transmitted by ultra-high frequency radio waves. It takes its name from the honeycomb of overlapping cells served by low-power radio transmitters.

Up to 300 calls can be handled simultaneously in each cell, a huge improvement over the existing mobile telephone system, which has the capacity to handle 24 calls in a city. The cells will have a radius of 12 to 16 kilometres (7 to 10 miles).

### Relay towers

Signals to and from call relay towers are connected to the conventional telephone system.

Penny, parked in a car outside Montreal City Hall, received the call from Tim Barnett, who was in a car outside Toronto City Hall.

Penny is eastern vice-president of Bell Cellular and Barnett is vice-president of the company's western division. Bell Cellular and a second company, Cantel, were granted licences in 1983 by the federal communications department to operate the new mobile telephone service in 23 cities across Canada.

Cantel and Bell Cellular, which belongs to Bell Canada Enterprises Inc., will start offering the service commercially July 1 in Montreal and Toronto.

Bell Cellular was prepared to go ahead before Cantel but then-communications minister Francis Fox imposed the July 1 startup date to give Cantel a fair chance to compete.

### Serve businesses

The minister also ruled that Bell Canada, the telephone operating company of Bell Canada Enterprises, could not manage the service for Bell. Bell Cellular was created as a new subsidiary of the parent company, Bell Canada Enterprises.

Penny said Bell Cellular will have "several thousand" customers when the service starts July 1, with small- and medium-size businesses providing the bulk of customers.

The services will be connected with the existing worldwide telephone network.

Cellular radio-telephones cost between \$2,000 and \$6,000 each, but can be leased for about \$50 a month. Bell Cellular will charge as little as \$4.95 a month, plus 60 cents a minute, for the service.

Plans call for extending the transmission cells along highways in the Quebec City-Windsor corridor to allow customers to remain in constant telephone contact when they travel.



CANADA

## POSSIBLE BRITISH TELECOM TAKEOVER OF TWO FIRMS DISCUSSED

### CTG Tentative Agreement

Toronto THE TORONTO STAR in English 8 May 85 p E1

[Article by Fred Lebolt]

[Text] Giant British Telecom has burst on to the Canadian telecommunications scene with the surprise announcement that it is taking over Toronto-based CTG Inc., Canada's largest independent seller of telecommunications equipment.

Under the tentative agreement, British Telecom, which is seeking 100 percent of the CTG stock, will offer \$5.25 for each share. The shares--traded in Montreal and New York--were hovering in the \$3.60 range before the announcement.

The move means that Canada's three largest interconnect firms--CTG, Bell Communications Systems Inc and Telecommunications Terminal Systems--are all owned or controlled by major corporations.

Bell Communications Systems is part of Bell Canada Enterprises which owns the Bell Canada telephone company, while Telecommunications Terminal Systems is jointly owned by Canadian National and Canadian Pacific Ltd.

The \$20 million CTG agreement in principle is seen by observers as the culmination of a painful consolidation process that has wracked much of Canada's fledgling interconnect industry, made up of firms that sell telephone and telecommunications equipment, usually in competition with telephone companies.

"The industry has been inundated with failure. The smaller firms have not been able to get the capital to continue," CTG chairman Ed Lavin said in an interview yesterday.

Lavin--noting the takeover is the giant British telephone company's first overseas acquisition--said CTG will remain under the same management after the takeover.

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Diane Flood, vice-president of Toronto telecommunications research firm Northern Business Information Ltd., said the three Canadian market leaders represented about 40 percent of the \$285 million interconnect market last year.

"Any interconnect company that is not aligned with the telephone company or a manufacturer is going to be relegated to small potatoes," she said.

That was echoed by the Number 2 interconnect firm, Bell Communications Systems.

"There's a requirement for that kind of investment" from a large company, said president Gary Bray.

#### Lost Money

Bray said he was "not overwhelmed" by the CTG announcement, although what the new competition from British Telecom means will depend on "what their primary focus will be."

CTG had 1984 sales of \$45.2 million, but lost \$3.8 million on the year.

Members of management and several major shareholders of the company--holding a total of 25 percent of the shares--have agreed to support the proposed acquisition.

Lavin said he expects British Telecom to make CTG a private company, no longer traded.

The deal is subject to conditions including completion of a final agreement and approval from shareholders.

#### Mitel Talks

Toronto THE GLOBE AND MAIL in English 10 May 85 pp B1, B8

[Article by Lawrence Surtees]

[Text] The financial woes of Mitel Corp of Kanata, Ont may soon be over if it succeeds in selling a large chunk of treasury stock to "a major multinational corporation"--that sources say is British Telecom PLC--for \$8 a share.

Trading in Mitel was halted on the Toronto Stock Exchange because, the company said, "it is discussing with a major multinational corporation a transaction which could result in a substantial investment in newly issued shares of Mitel."

The investment would result in "a change in effective control," subject to a definitive agreement and regulatory approvals. Bare majority control of Mitel would require the purchase of almost 40 million shares, for a total price of about \$320-million.

Proceeds from such a sale would be more than sufficient to wipe out all of Mitel's debt, which amounted to about \$266-million for the year ended Feb 24, 1984.

British Telecom, the principal supplier of telecommunications service in Britain, operates one of the largest telephone networks in the world. It became a public company with a world-record-sized issue earlier this year.

This week, British Telecom announced an agreement to purchase all of the equity of CTG Inc of Toronto. CTG distributes Mitel products and is one of the largest domestic independent sellers and installers of business telephone equipment.

British Telecom had revenue of more than £6.8-billion for the year ended March 31, 1984, and profit of £581-million. For nine months ended Dec 31, 1984, profit was £685-million on sales of £5.62-billion.

Mitel recently reported a loss of \$32.1-million on revenue of \$370.8-million for the year ended Feb 22, 1985, compared with a loss of \$32.4-million on revenue of \$342.6-million a year earlier.

But Mitel posted a profit of \$64,000 in the fourth quarter, compared with losses in six of the previous eight quarters. The company has embarked on a cost-cutting program, aimed at reducing inventory and curtailing expenses. It has closed plants and laid off staff.

Mitel's future growth is pinned largely to sales of its SX-2000 switch to large companies and institutions. With competition squeezing profit margins on its historically strong small-product lines, particularly in the United States, Mitel has renewed an assault on offshore markets.

Of the 131 SX-2000 switches sold in the past year, more than half have been sold in Britain, according to Mitel officials.

Mitel's relationship with British Telecom can be traced to the development of the SX-2000. British Telecom was the first utility to grant approval to install the switch to a telephone network, clearing the way for exports from Mitel's Kanata plant.

Mitel has a manufacturing presence in Britain with a Mitel Telecom Ltd plant in Caldicot, Wales. Terence Matthews, who co-founded Mitel in 1973 with Michael Cowpland, came to Canada from Wales in 1969. He met Mr Cowpland, who left Britain the same year, at a now-defunct subsidiary of Northern Telecom Ltd of Mississauga, Ont.

Earlier this year, Mr Matthews said he would contemplate the sale of the company only if there were a "tempting" offer from a company with complementary expertise in telecommunications. "We would look at what a company could strategically offer us in addition to cash," he said.

Acquiring control of Mitel would give British Telecom a stronger presence in North America, Asia and the Middle East, as well as access to the Canadian company's digital technology, a key to competing with other major telecommunications manufacturers.

CSO: 5520/40

CANADA

FURTHER STEPS REPORTED IN MITEL SALE, CTG TAKEOVER

Mitel Sale Tentative Approval

Ottawa THE CITIZEN in English 14 May 85 p 2

[Article by Stephen Bindman]

[Text]

Industry Minister Sinclair Stevens has given a tentative nod of approval to British Telecom's proposed takeover of Mitel Corp., saying it would make the Kanata-based company an international hi-tech leader.

Stevens said Monday details of the takeover must still be finalized and approved by the Foreign Investment Review Agency, but said Mitel officials are well aware of the government's concerns.

"Rather than any kind of a reversal or transfer of technology out, one of the attractions to British Telecom is to build on what they have in Canada," Stevens told reporters outside the Commons.

"They want this to be their international arm in a manufacturing sense. That's just excellent."

British Telecommunications PLC of London, the world's fourth-largest telecommunications company, announced last week it had reached agreement in principle to acquire a 51-per-cent controlling interest in Mitel for \$320 million.

The industry minister said the opposition parties, "socialists and near-socialists" are being too hasty in condemning the deal, approved by British Telecom's board of directors Monday, "that may save over 2,500 jobs in Canada" and has tremendous potential for Mitel.

"If the company was ever to go under, everything's lost... The \$330 million that they may get in fresh equity out of British Telecom will put them in an extremely competitive, viable situation. The way it was described to me is they may well become for British Telecom what Northern Telecom is to Bell Telephone."

The Mitel-British Telecom deal "is a wholesome blending of Canadian technology with fresh capital to create a new manufacturing entity" that will stabilize jobs in the company's plants and shore up its sagging finances, Stevens said.

Stevens said Mitel's new owners will be expected to live up to the conditions of the federal government's \$30 million grants to the company in 1981 and 1982.

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But NDP industry critic Steven Langdon said he still has "great concerns" about the takeover by the British company, which he says is majority owned by the British government.

If a fresh infusion of capital is needed at Mitel, Langdon said the government should only allow the British telecommunications giant to obtain a minority interest.

"I just don't think it makes sense to welcome with open arms that kind of a company to come into the country," Langdon told reporters. "I don't think the minister has really realized the kind of company involved in this takeover bid."

Langdon said the real reason behind the takeover is to allow British Telecom to break into the U.S. telecommunications market

using Mitel's American plants.

"I think what will take place over time is a shift of research and production from this country to the U.S.," he said.

Langdon said the British company, known for its "conservative, non-innovative" approach, will have trouble absorbing a "dynamic" company like Mitel.

"It just seems to me so crazy to be looking at the kind of constipated state capitalism that you've had in the British context and expect that to be some kind of salvation for a very important Canadian company," Langdon told reporters.

Liberal MP Lloyd Axworthy said it was "exceedingly strange" that Stevens is pleased at "having lost Canadian control of a major Canadian high-tech company to a foreign owner."

#### CTG Takeover Plans

Toronto THE GLOBE AND MAIL in English 21 May 85 p B5

[Article by Andrew McIntosh]

[Text]

British Telecommunications PLC of Britain expects to begin its takeover bid for CTG Inc. of Toronto this week, the companies said in a joint statement yesterday.

Plans for the takeover, which is subject to approval by the federal Government under the Foreign Investment Review Act, were announced two weeks ago.

The companies said they have signed a definitive acquisition agreement covering all common shares and warrants outstanding of CTG, one of the larg-

est domestic independent sellers and installers of business telephone equipment.

The agreement calls for a cash payment of \$5.25 a common share and 90 cents a warrant and is conditional upon at least 2.5 million shares and 367,000 warrants being tendered.

The Ontario Securities Commission ordered British Telecom to increase the payment price for CTG warrants to 90 cents each from the previously announced 60 cents, and CTG must

get approval from its warrant holders before any warrants are cancelled in exchange for the 90-cent payment.

Any CTG common shares not purchased in the takeover bid will be acquired for \$5.25 after the amalgamation of CTG with a British Telecom subsidiary.

The companies said the total purchase price is about \$20-million. The takeover has been approved by the boards of both companies.

CTG reported a loss of \$3,861,000, or \$1.06 a

share, on revenue of \$45,220,000 for the year ended Dec. 31, 1984. In the latest quarter, ended March 31, 1985, it lost \$1,542,000, or 41 cents a share, on revenue of \$10,783,000.

Last week, British Telecom also announced it had reached an agreement with financially troubled Mitel Corp. of Kanata, Ont., for the purchase of a 51 per cent stake in the Canadian manufacturer of automatic telephone switching equipment. CTG is a distributor of Mitel products.

CSO: 5520/42

CANADA

SASKTEL COMMUNICATION FIBER-OPTIC TECHNOLOGY SALES NOTED

Toronto THE GLOBE AND MAIL in English 17 May 85 p B22

[Article by Roman Smilka]

[Text]

Saskatchewan Telephone is entering the international marketplace to sell its expertise in the commercial use of communication fibre-optics technology.

The provincial Crown corporation's income from sales of this high-speed form of communications is several million dollars to date. They are expected to be a significant source of income for Sasktel, which this year will have over-all revenue of more than \$400-million.

Two of its earliest customers were the Department of National Defence and the RCMP, possibly because one of the features of fibre optics is the virtual impossibility of anyone tapping it, unlike the ease of gaining illegal access to microwave frequencies or ordinary telephone lines.

Telephone companies in Bermuda and Barbados have enlisted the advice of Sasktel to establish fibre-optic networks.

"We've set up an office with people designated to receive the large number of visitors we've been getting. That office has become an international marketing wing," said Jim Osborne, assistant vice-president of public affairs.

In the past year, 45 international delegations have come to see Sasktel, which has one of the most advanced operational networks available. The delegations included

businessmen and scientists from China, the Middle East, Australia and Europe. The greatest interest has come from the United States, Peru, Colombia and Venezuela.

Sasktel's experience comes from developing, over the past five years a 3,260-kilometre fibre-optic network linking 12 cities and 40 towns in the province.

Development of the system began in the late 1970s, when planners decided that fibre optics offered better value than microwave or satellite communications, which have problems such as interference during bad weather.

In the 1970s, Sasktel undertook a program of burying rural telephone wires. The experience gained greatly aided the quick-burying techniques developed for fibre cables.

Sasktel's system was originally budgeted at \$68-million. It was not only completed ahead of schedule, it came in at \$10-million less.

The company has about 250 full-time technicians, out of a work force of 4,400, for maintenance and service. Sasktel claims it can get an experienced repair crew out to a break on any part of the network in less than three hours. (The utility had received bad publicity in the past, when it took as long as three days simply to round up the technicians.)



The first 60 kilometres of cable were laid in 1980 between Regina and the town of Yorkton. The success of that first venture prompted the subsequent laying of cable on the heavily used portions of the provincial grid.

Mr. Osborne said the fibre system was designed to be a high capacity transmission medium for cable television to remote areas, and also to increase the capacity of the province's telephone and data network.

The single-mode fibre optic cable used in the network is manufactured by Northern Telecom Ltd. of Mississauga, Ont. It carries 135 megabits (million bits of informa-

tion) a second. This compares with 45 megabits of the previous multi-mode technology, and the super-high-speed 565 megabit rate of a technology under development by Sasktel in Regina.

One of the major advantages of fibre-optic cable over copper wiring is a very long lifespan. The glass and its plastic and steel coverings are almost impervious to the elements. Ordinary telephone wiring has an estimated life of 30 years.

The cables, as thick as a man's thumb, are expected to be able to handle the province's voice, image and data needs for the next decade. One pair of 135-megabit lines can carry about 2,000 simultaneous telephone conversations.

CSO: 5520/42

CANADA

POSITION OF MITEL SUBSIDIARY TRILLIUM TELEPHONE DISCUSSED

Ottawa THE CITIZEN in English 28 May 85 pp E1, E9

[Article by Barbara Cook]

[Text]

**A**fter 18 months of living in the shadow of Mitel Corp., Kanata's Trillium Telephone Systems Inc. is finally starting to share some of the limelight with its famous parent.

Despite a somewhat shaky start with a first product that the founders admit "fell flat on its face" in the North American market, the Mitel subsidiary tried a new approach and soon carved out a niche in the rapidly-growing market for small business telephone systems.

Now one of the fastest-growing companies in the high-technology industry, Trillium expects to reach \$50 million in sales this year — more than triple last year's level of \$14.8 million.

British Telecom's proposed \$320-million takeover of Mitel should give Trillium access to an even wider range of markets and financing.

"(The British Telecom deal) gives credibility to Mitel, so our customers will no longer have cause for concern about how (our parent company) is doing," says executive vice-president Paul Wilker, who formed the company with president Graham Neathway in September, 1983.

"It also allows us to secure financing much more easily, because we have the backing of both Mitel and British Telecom.

"Hopefully, it will now be easier for us to penetrate the markets where British Telecom has been traditionally strong, such as the U.K., Hong Kong and Australia."

Even analysts who have been lukewarm on Mitel are keen on Trillium.

Graeme Kirkland, president of Toronto's Third Capital Corp. and editor of *The Technology Investment Letter*, says Trillium's performance has been "incredible."

"The product they came up with was technologically superior to anything else on the market," Kirkland says.

"The fact that they have achieved such dramatic growth since they started is an indication that the company has something unique."

Telecommunications analyst Diane Flood of Toronto's Northern Business Information Ltd. says Trillium has won some significant contracts in Canada and the U.S.

Trillium announced Monday it has won a major contract to supply its six-line business system,

the TalkTo 616, to Edmonton Telephones. The initial order is worth \$870,000, and additional orders could reach another \$1 million this year.

This is the second major deal for Trillium in Alberta. In February, the company signed an agreement worth at least \$1.1 million to supply two of its business systems to Alberta Government Telephone, and the deal could be worth another \$3 million over the next year.

Much of the technology for the telephone systems in Trillium's product line originated with Mitel's small systems group.

Neathway, who was vice-president of engineering for the small systems group, and Wilker, who was vice-president of product management, realized two years ago that telephone sets for home and small-business use required different marketing and management than Mitel's other products.

Mitel senior management — in the middle of the company's first-ever money-losing year and struggling with the SX-2000 "super-switch" — recognized they didn't have the time or resources to devote to the low end of the market, and were receptive to Neathway's and Wilker's scheme to spin off a separate subsidiary exclusively for small, low-cost telephone systems.

Mitel retained 70-per-cent ownership of Trillium, and offered the rest to the public at \$10.50 a share, with a bonus. Trillium shareholders have a one-time option this November to convert their Trillium shares into \$10.50-worth of Mitel shares.

Although that bonus didn't mean too much during Mitel's darkest hours, it did mean that investors who were skeptical about Trillium's future wouldn't be stuck if the shares dropped in value.

Trillium's first product was the TalkTo 109, a telephone system that handles up to five extensions and four intercom units on a single telephone line and can be programmed to provide security and

energy management functions such as automatic light and appliance controls.

Neathway and Wilker thought the system would be a hit with North American consumers, ("That was our first mistake," Neathway quips), but the market was saturated with cordless telephones and single-line sets that were much cheaper than Trillium's \$590 product, even though they had fewer features.

Largely because of difficulty selling the TalkTo 109, Trillium lost \$743,000 on revenue of \$14.8 million for the fiscal year ending Feb. 28, 1985 — a far cry from earlier predictions of \$22.5 million in sales and a profit of \$1.6 million.

Although the one-line product has sold well in Europe (the Swedish Telecommunications Administration has been a major customer) and Asia, Trillium decided last June to stop further marketing and technology development for the product and concentrate instead on a two-line system, the TalkTo 208.

Trillium has not given up on the TalkTo 109 for the North American market, but instead of spending its own marketing dollars to create demand for the product, Trillium has enlisted the aid of such companies as Sears and British Columbia Telephone Co. to market the system.

Meanwhile, Trillium's telephone systems for small business use have started to take off.

Trillium's last two quarters were profitable, and accounted for \$13.3 million of the year's sales of \$14.8 million, largely because of the success of the company's new three- and six-line key telephone systems, the TalkTo 308 and 616.

The market for these small systems is large, and growing rapidly.

Wilker and Neathway say that 94 per cent of the small businesses in North America need telephone systems of six lines or less.

The Trillium sets are designed to replace an estimated two million illuminated button key systems, the basic black rotary dial sets with a row of six lighted pushbuttons along the bottom.

But Trillium is not the only company going after a chunk of this growing market.

Such formidable competitors as Northern Telecom Ltd., American Telephone & Telegraph Co. (AT&T) and Tie Communications Ltd. are pitting their products against the Trillium line.

Although Wilker thinks Trillium has an advantage because it is the only major player to concentrate exclusively on small systems, the company is working hard to cement that advantage.

Trillium spends a hefty 15 per cent of sales on marketing, to convince customers that Trillium products are the low-cost answer to their business needs and that Trillium understands those needs better than the "big guys."

"If you look at the companies that have died in the Ottawa area," Neathway says, "they usually had a good product with a lot of development but couldn't get anybody to buy it."

"We've spent a great deal of money and effort on marketing so that our products slip through effortlessly into the market."

Trillium's "Buttons for Bozos" advertisement in recent issues of *Newsweek* and *Business Week* magazines, for example, stresses the simplicity of such Trillium features as call forwarding, automatic redial and conference calling.

To remain competitive, Trillium's products must be comparable in price to the old phones they are replacing, and be extremely reliable.

"The small business customer is very cost-conscious," Neathway says.

"He basically wants to be able to receive calls and make calls. Cost is the number one thing you have to market, then you start adding features and capabilities."

"If you go to a customer and say, 'I have all these features but it costs \$20 more a month,' then it's game over."

To date, Trillium has maintained a strong record of reliability.

Although an acceptable industry return or service rate is about five per cent of products sold per year, Wilker says less than one per cent of Trillium's systems have required service so far.

About 70 per cent of Trillium's sales come from the U.S. Canada accounts for about 20 per cent, and customers in Europe and Asia make up the remaining 10 per cent of sales.

Trillium has several more small business systems in the works, including the TalkTo 1000, which works behind PBX and Centrex electronic switchboards, and a new product especially for the Swedish market.

Because of its rapid growth and informal atmosphere, Trillium has often been compared to the early days of Mitel.

CANADA

# NOVATRON ONLINE PURCHASING CATALOG FOR BUSINESSES EXPANDING

Toronto THE GLOBE AND MAIL in English 31 May 85 p B13

[Article by Alexander Bruce]

[Text]

One of the minor joys in operating the world's first computer-based directory of industrial goods and services is tracking the weird assortment of business propositions that flash daily through the data base.

"We've got some people trying to sell sewing needles, and others flogging everything except atomic bombs," said Doug Sears, marketing manager of Novatron Information Corp. of Halifax.

But with rates varying from \$175 for a two- or three-line company profile to several thousand dollars for a 50-page open format advertisement, there is a lot of room for diversity.

And when the creators of Supplyline — Novatron's original online purchasing catalogue — are not perusing the system's amusing advertisements, they are out drumming up new business.

In just over a year, Novatron has persuaded more than 86,000 Canadian companies to advertise about 218,000 products and services on Supplyline.

The company expects to sign up another 120,000 companies — increasing the system's advertising list to 500,000 — by 1988.

"We are well ahead of the projections we made when we brought the system into operation in April, 1984. We've been working hard to spread the word around. So far, the response has been tremendous," Mr. Sears said.

What makes the system so attractive, he said, is its online capacity that lets buyers place orders directly with advertisers. The electronic mail service reduces paperwork and the waiting period that follow transactions, and instantly informs distributors of the success of certain products and services in the marketplace.

"Supplyline focuses everything and points buyers in the right direction very quickly. All the material can be accessed with ease. And the data base is so user-friendly, a user can send a Telex online at the same time that he is indexing," Mr. Sears said.

The concept of a catalogue data base is not new, but as far as Novatron is aware, Supplyline is the first purchasing information system designed specifically for business.

The service was the brainchild of company president Dan Potter, who reasoned that printed business catalogues, such as the Canadian Trade Index and the Scott's series of industrial directories, were unwieldy and often information became outdated.

Mr. Potter put his vice-president of research and development, Peter Hsu, on to the task of developing a flexible software system that would ultimately replace the goods and services books that were available.

Mr. Hsu's system incorporated a variety of innovations designed to facilitate business transactions and also accommodated traditional display copy and advertising formats.

The ingenious design encouraged users and advertisers because it was familiar as well as convenient.

Although Supplyline originally served the oil and gas industry, counting among its users such major Alberta oil patch companies as Gulf Canada Ltd., Shell Canada Ltd. and Bow Valley Indust-

ries Ltd., its advertiser and user base expanded rapidly.

Currently, Mr. Sears said, the system contains information on a wide variety of goods and services that users can access literally anywhere in the world using a modem and a terminal. Users pay only for the time they spend online, which works out to about \$1 a minute.

Eventually, Novatron hopes to expand the service even further. Mr. Sears, who recently demonstrated the system's capabilities in Norway, said Supplyline constitutes the company's major commitment for the short term.

"There seems to be a real need for this type of thing. We are alone in the market. Who knows where we can take the service?"

CANADA

BRIEFS

MICROTEL SOUTH KOREA CONTRACT--A contract worth more than \$2.1 million has been awarded to Microtel Ltd. by Daewoo Corp and Daeyoung Electronics of South Korea for the supply of microwave radio and multiplex equipment targeted to improve telecommunications for Pakistan Railways. The equipment, slated for delivery in September 1986, will be manufactured at Microtel's Burnaby plant. [Text] [Vancouver THE SUN in English 3 May 85 p C8]

CSO: 5520/41

INTER-AMERICAN AFFAIRS

BRIEFS

ANDEAN SATELLITE POSITION, COST--The nations of the Andean Group will have their own communications satellite after their approval of the purchase of a new one, at a cost of \$250 million, or of a used one, at a cost of \$100 million. This was announced yesterday by Transportation and Communications Minister Francisco Aramayo Pinazo upon his return from Cuzco after the concluding session of the conference of the Association of State Communications Enterprises of the Andean Region. He said that the future Andean satellite will be positioned at an altitude of 37,000 km at 78 degrees over Peru, at 72 degrees over Colombia, or at 76 degrees over Ecuador. Operation is targeted for 1990 and there are already bids from French, United States, and Canadian manufacturers, he added. He noted that at future meetings one nation will be designated as the leader in the group acquisition. Costs will be borne proportionally by Venezuela, Colombia, Ecuador, Peru, and Bolivia. [Text] [Lima EL COMERCIO in Spanish 17 Jun 85 p A-1]

CSO: 5500/2087



ARGENTINA

TELECOMMUNICATIONS EQUIPMENT IMPORTS THREAT TO SECTOR

Buenos Aires CLARIN in Spanish 11 Apr 85 p 19

[Text] The president of the Argentine Chamber of the Electronics Industry (CADIE), Marcelo Diamand, warned yesterday that "the drop in demand by the public sector is tragic. If this budget cut is not revised, factories may close." Speaking to CLARIN, the business leader stated that the firms most affected by these investment cuts are those devoted to telephone and telecommunications equipment, including the larger multinationals. "The authorities have been advised about this abrupt cut in demand which will force the manufacturing companies to close their doors in a very short time, since they depend completely on state purchases," declared Diamand.

Restriction

He said that the officials contacted have not responded to them, attributing responsibility to the budget restrictions agreed upon with the IMF, but the fact is that "the electronics industry cannot endure in these conditions."

Diamand also referred to the delays in payments by the treasury and the loss represented by the deductions to which the invoices are subjected under the system of computation of major costs, but he said that that problem gives way in importance to what the lack of new manufacturing orders represent.

Entertainment

Diamand explained that in the subsector of the electronics industry devoted to the production of durable consumer goods, entertainment, comprised of color TV, audio equipment and others, "after a sharp drop in demand that occurred in October of last year, sales revived a little in March but now we are slipping back again."

Regarding what this does to investment trends in the sector, Diamand commented: "New investments and expansions are unmentionable words; in these conditions, one cannot think about that." However, there is one exception: informatics. "This is one area where investment is being considered because demand is promising."

Asked about exports of the national electronics industry, Diamand declared:

"There is much talk here about exports but it is all oratory, because since 1982 export incentives have never been as low as they are now.

He expanded on that idea, saying that "reimbursements have been practically cut inasmuch as at the present time the largest reimbursement is 10 percent, but many products receive only 2 percent. The new export laws contain good intentions but they have not been put into practice."

He said, in contrast, "Brazil, which has an earnest export policy, offers its exporters various benefits which together represent an incentive of over 40 percent, and they export what they want, not only in electronics but in any industry."

#### Imports

With regard to imports, the president of CADIE stated that "there is no great problem in the supply of capital goods and raw materials but there are with some equipment that is being brought from abroad with supersophisticated specifications, especially telecommunications equipment and equipment for radio and TV stations, specifications that make it impossible for national industry to get in, and needlessly so."

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CSO: 5500/2080

16 July 1985

## BANGLADESH

## BANGLADESH ENTERS FIELD OF SATELLITE-BASED HIGH TECH

Dhaka THE BANGLADESH TIMES in English 9 May 85 pp 1, 9

[Text] Bangladesh entered the field of satellite based high-technology in watching cyclones, forecasting floods, estimating crop yields, preparing inventory of forest resources with the formal opening of Agro-climatic Environmental Monitoring (ACEM) system on Wednesday.

Planning Minister Dr Abdul Majeed Khan inaugurated the United States aided ACEM project of the Bangladesh Space Research and Remote Sensing Organisation (SPARRSO) at Agargaon at a simple ceremony.

The most sophisticated remote sensing data reception and analysis system will enable the SPARRSO scientists to receive and analyse data from the American LANDSAT and TIROS satellites and the Japanese GMS satellite. It will also help predicting storm paths two days before they hit Bangladesh and measure accretion of land in the Bay of Bengal.

The equipment with an estimated value of three million dollars was provided by the USAID as part of the ACEM project which began in late 1980. During the course of the project, nine SPARRSO scientists and technicians received training in the operation and maintenance of the system at the Goddard space flight centre of the American National Aeronautics and Space Administration Agency (NASA) which also provided substantial help to SPARRSO in implementing the project.

Speaking on the occasion the Planning Minister, Dr A. Majeed Khan, on Wednesday said that lack of a strong data base was one of the major causes responsible for the failure of the development plans in the past.

He said that the statistical data available in the country was about seven years old and often was misleading resulting in wrong projections.

The Minister said that the Government had changed many of the approaches for the Third Five-Year Plan in terms of approximation and actual realisation.

The US Ambassador, Mr Howard B. Shaffer, USAID representative, Mr Robert Cramer, SPARRSO Chairman, Dr Farooq Azia Khan and SPARRSO Director, Dr A.M. Chowdhury also spoke at the function. Dr A.M. Sharafuddin, Secretary, Science and Technology Division presided. French Ambassador, Mr Samuel de Beauvais was also present at the function.

US Ambassador Schaffer said that Bangladesh would now be able to spot cyclonic storms and other disaster related weather activities four to five days before they hit and the Government's disaster alert system would be strengthened.

Mr Schaffer further pointed out that data will become available on the annual cycle of agriculture production. Information developed from this data will be useful in studying cropping patterns and better determining the level of soil moisture. This information will be useful in making decisions as to the best time for planting and harvesting crops--matters of great importance to Bangladesh.

CSO: 5550/0095

BANGLADESH

GOVERNMENT URGED TO FORMULATE INFORMATION POLICY

Dhaka THE BANGLADESH OBSERVER in English 23 May 85 p 1

[Text] The leaders of the Central Action Committee of Bangladesh newspapers and news agencies in a statement on Wednesday expressed their thanks to President Ershad for lifting the ban on publication of the Dainik Desh and allowing publication of the Khabar as daily reports BSS.

They also recalled the cooperation of Home Minister Major General Abdul Mannan Siddiqui, Information Minister Mr A.R. Yusuf and Energy Minister Mr Anwar Hossain in this regard.

The leaders hoped that the owner of the Dainik Desh would resume publication of the daily immediately by absorbing the journalists press workers and general employees who were working there.

They strongly believed that the assurance of President Ershad regarding resumption of publication of the Daily Janata would withdraw the closure notice of the daily forthwith and refrain from making any other complications and obstructions in the way of immediate resumption of publication of the daily.

They also mentioned the President's categorical assurance to the Central Action Committee leaders at a meeting with him at Bangabhaban on April 8 regarding formulation of a national policy on newspaper industry and a policy of fair distribution of Government advertisements to newspapers. They hoped that the concerned Ministry would intensify its efforts in the formulation and announcement of such policies for unfettered growth of the newspaper industry in the country.

In the statement the Action Committees leaders stressed the need for withdrawal of certain Government restrictions on publication of news in conformity with the Government's announced policy of democratisation and Freedom of the Press. They also called for withdrawal of the ban on publication of the weekly Ittehad and Ijtihad.

CSO: 5550/0111

BANGLADESH

BRIEFS

PRESS AGENCY HEAD--Mr A.B.M. Musa took over yesterday as the Managing Director and Chief Editor of Bangladesh Sangbad Sangstha (BSS), reports BSS. He was Director General of the Press Institute of Bangladesh from 1981 until he joined BSS. A reputed journalist both at home and abroad, Mr Musa has a long background of 35 years in the profession since he joined the then Pakistan Observer in 1950. After Independence, he became the first Managing Director of Bangladesh Television in 1972. He joined now defunct daily Morning News as its Editor in 1973. He was Regional Director of Asia-Pacific Region of United Nations environment programme in Bangkok from 1978 to 1980. Mr Musa is a director of Manila based Press Foundation of Asia and also a fellow of Commonwealth Press Union, London. [Text] [Dhaka THE NEW NATION in English 16 May 85 p 8]

HIGH FREQUENCY NETWORK--Chittagong, May 14 (BSS)--Worlds on a scheme to install a seven-channel high frequency telecommunication network at hilly district of Khagrachhari have been going on rapidly at a cost of 27 crore. According to official sources here, ultra-high frequency towers will be set up in all upazilas of this district so as to establish direct telecommunication link with Dhaka, Chittagong and other important parts of the country. The high power microwave system will be installed at the top of the 'Allutilla' Hill of Khagrachari. The project was included in the special five-year plan chalked out by Chittagong Hill Tracts Development Board to quicken the pace of overall development of this hilly area. The scheme is expected to be completed by 1987. [Text] [Dhaka THE NEW NATION in English 16 May 85 p 2]

CSO: 5550/0098

INDIA

BRIEFS

GANDHI TELLS SPACE, TELECOMMUNICATIONS PLANS--New Delhi, April 29 (UNI)--The Prime Minister, Mr Rajiv Gandhi, said today that India had enough uranium reserves to increase the installed nuclear power capacity to 10,000 MW by AD 2000 as envisaged in the 15-year profile drawn up by the government. Regarding the department of space, members were informed that India now had on-going cooperative efforts with the Soviet Union, United States, United Kingdom, West Germany, France and the European Space Agency. Collaborative areas were also being explored with Japan and other countries. A total of 65 long-distance telecommunications routes were in operation and nearly 2033 two-day telecommunication circuits had been loaded on Insat-1B which has been operational since October 15. The loading is being increased to reach full rated capacity of about 3,956 two-way circuits by the year end. Nineteen low-cost terminals and 10 emergency telecommunication terminals were expected to be installed by the end of next year. Meanwhile, Insat-1B would also be used for a pilot scheme for a direct disaster warning system in selected cyclone-prone coastal regions in Andhra Pradesh and Tamil Nadu. [Excerpts] [Calcutta THE TELEGRAPH in English 30 Apr 85 p 4]

MOBILE PHONE EXCHANGES--New Delhi, May 6 (UNI)--Twenty-five mobile telephone exchanges will be commissioned in different parts of the country before September this year as part of a modernisation and expansion programme. The first containerised exchange was commissioned at Sirsa in Haryana recently. Mr F.C. Kuzinik, vice-president and director of marketing of a well-known multinational telecommunications company, gave this information to newsmen at a technical presentation of public switching and transmission systems here last night. He said container-type switches would be placed and linked up throughout the country. The mobile switches were computer controlled and could handle 500 to 5,000 subscribers and could be smoothly incorporated into a digital telephone network. [Text] [Calcutta THE TELEGRAPH in English 7 May 85 p 5]

TELECOM TECHNOLOGY OFFER--New Delhi, May 6--Top executives at AT and T Philips Telecommunications Company today began a two-day presentation of the firm's latest technology in switching and transmission systems to policy-makers and telecom experts. It is part of their bid to secure a share of the growing market for these systems expected to arise in the wake of the 10-year telecommunication development plan formulated by the Government. Mr H.C. Kuznik, vice-president of the Netherlands-based multinational

company told pressmen that his company was interested in transfer of technology and participation in manufacture of switching and transmission systems. He said the company was studying the terms of the tenders floated for technology transfer and collaboration in manufacture of microwave and fibre optics systems for transmission network. In the case of fibre optics, two tenders had been floated, one by Hindustan Cables and the other by the Madhya Pradesh State Electronics Corporation. He felt that it was not an economic proposition to have two projects in fibre optics. Anyhow, his firm had purchased the tender documents and was examining the terms. Mr Kuznik said the system offered by his firm represented a new concept in digital switching. It was capable of operating as a local, transit, local/toll and toll exchange both in 30-channel and 24-channel environments. Not only had the many solutions to previous telecommunications challenges been integrated into it, but a sophisticated and flexible architecture had been developed to facilitate the introduction of Integrated Services Digital Network (ISDN) features, he claimed. [Text] [Madras THE HINDU in English 7 May 85 p 9]

CSO: 5550/0094



PAKISTAN

REPORT ON SATELLITE PROJECT FEASIBILITY SAID COMPLETED

Karachi DAWN in English 11 May 85 p 1

[Text]

KARACHI, May 10: A detailed review of the voluminous feasibility study on the 250-million U.S. dollar Pakistani telecommunications satellite project (Paksat) has just been completed by Suparco scientists and a team of experts from a foreign consultancy, firm specialising in aero-space technology.

The feasibility study (which is spread over thousands of pages and covers all aspects of the Paksat project) was carried out by foreign consultants and handed over to Suparco late last year, since when it has been subjected to minute analysis by Pakistani scientists.

The Pakistan Space and Upper Atmosphere Research Commission (Suparco), which is in charge of the Paksat project, conducted the detailed review of the feasibility study and its report will be submitted to the federal cabinet later this month for a final decision.

If the federal cabinet gives the go-ahead to the project, Suparco will move on to the next stage and invite international tenders for fabrication of satellite components and move ahead with negotiations about the launching of the satellite sometime in 1987-88.

The entire project includes the launching of two telecommunications satellites (one as a back-up to come into use only in case of a malfunction in the first satellite) and the construction of ground receiving and transmitting stations which will link into the existing telephone/telegraph/telex network besides providing channels for television and radio.

The ground stations involved in the project will be of different types — one acting as the "command" station and capable of transmitting orders to the on-board

satellite computer and other automatic equipment.

There will also be over a dozen major ground stations around the country which will act as nodal points relaying incoming signals from the satellite to smaller stations.

Suparco has drawn up plans to construct over 2,000 "T.V. receive only (TVRO)" stations at remote spots throughout the country to provide TV outlets which will be used primarily for educational and adult literacy programmes.

The expected life of one satellite is projected at around ten years, and Suparco envisages that by then it will have recovered the cost of the project.

The telecommunications satellite will be run by Suparco on a commercial basis, and fees will be charged for telephone, telegraph and telex channels made available, as well as for those utilised by Pakistan Television and Radio Pakistan, other news media organisations and banks and economic institutions.

The services available for banks and financial institutions through Paksat will eventually include instantaneous electronic fund transfers, computer links, and communications both on an All-Pakistan and international basis.

When the system becomes operational later this decade, the first two years will be negative from the financial recovery point of view, but from then onwards till the sixth year Suparco will start breaking even. Paksat is expected to begin showing a profit from the sixth year of operation, and Suparco plans to pay off all loans incurred in the project by the eighth year. The ninth and tenth years of the projected operational span of the Paksat project will provide net profits for

Suparco.

Initial contacts have been established between Suparco and some foreign financial institutions for funding of the 250-million-dollar Paksat project.

Official sources noted that the Paksat project is of major importance to the country, since it will provide ultramodern communications links with remote parts of the country and provide educational opportunities for the rural population.

The most vital point about Paksat is that through it Pakistan will enter the space age and begin assimilating the latest technology of this era, the sources added.

Despite signing a general memorandum of understanding with a visiting team from the U.S. National Aeronautics and Space Administration (NASA) earlier this year, Suparco is keeping its options open on placing the final launch order for the telecommunications satellite.

The memorandum does not finally commit Suparco to utilising the U.S. space shuttle as a delivery vehicle for Paksat. One major alternative is the European space agency's Ariane launch system.

Suparco will also consider Chinese and Japanese satellite launch systems, should they be available. It is understood that should an offer be made by the Soviet Union to launch the satellite on a commercial basis, Suparco is prepared to consider it strictly on merit.

However, should Suparco eventually turn to another satellite launch system for the Paksat project instead of the US space shuttle, there can be no question of sending a Pakistani astronaut on some future shuttle mission.—APP.

PAKISTAN

PAKISTAN, CHINA PLAN JOINT PRODUCTION OF TELEPLAYS

Lahore THE PAKISTAN TIMES in English 12 May 85 p 1

[Text]

The People's Republic of China and Pakistan will start joint production of teleplays in September this year.

According to official sources, a Central China Television team is to visit Pakistan in summer later for the shooting of a play titled 'Rishtay' in collaboration with the Pakistan Television.

Under an agreement already approved by the Cultural Ministry of China and Pakistan Information Ministry, the Central China Television and the Pakistan Television will produce one play each in joint collaboration. Television artists of both the countries will be featuring in the plays to be produced by either country. Shooting facility and other paraphernalia will be made available separately in China and Pakistan, and the expenditure will be borne by each country.

for filming in their respective countries.

The Chinese role will be performed by Chinese artistes and the Pakistani roles will be done by the Pakistani artistes.

The drama to be produced by the Central China Television is titled 'Rishtay', while the other to be filmed by Pakistan is titled 'Karakoram Highway', named after the famous silk road which has links the two countries since ancient times.

The script of 'Rishtay', has been written by a well known Chinese wife and husband playwright, Madam Zeng Shiou Ling and Mr. Shi Cheng Yuan. The play will be directed by Mr. Da Yuan Huai, who has already made sterling contribution in the cultural field between Pakistan and China, and has rendered many Pakistani dramas in Chinese language.

The proposal for teleplay joint production between the two brotherly countries was put forward in 1981. First it was proposed that the script of the play would be prepared jointly by the world playwright of Central China T.V. and the Pakistan T.V. and it was decided to work out a common device to produce a conjoint script and shoot it in their respective countries. It was, however, considered somewhat difficult to bring together representative writers for the purpose.

Then a new proposal was put forward which was accepted that the two countries would select their own script. It is obvious that the theme of the drama will be the friendship between China and Pakistan, which has stood the test of time and described by leaders of the two countries 'as high as Karakorrams and as deep as oceans'.

CSO: 5500/4738

INTER-AFRICAN AFFAIRS

CEPGL CAPITALS LINKED BY AUTOMATIC TELECOMMUNICATIONS

Kinshasa ELIMA in French 26 Apr 85 pp 1, 7

[Article by Nkinamubanzi Dibango]

[Text] On Friday, in the Regional Assembly's meeting hall, citizen Endjonga Bokwa Bomow'Onkoy, lieutenant-governor of Kivu, chaired the closing session in the proceedings of the first meeting of the working group of telecommunications experts of the CEPGL [Economic Community of the Countries of the Great Lakes] member countries, namely, Burundi, Rwanda and Zaire. The meeting ran from 15 to 19 April 1985.

Citizen Ndokayi, CEO [chief executive officer] of the ONPTZ [Zairian National Posts and Telecommunications Office] and head of the Zairian delegation at these sessions, made the opening speech on this occasion, citing the importance Zaire attaches to telecommunications, as evidenced by the high priority decreed for it in the objectives of the 7-year term of office of the Guide of the Revolution, Marshal Mobutu Sese Seko, the significance of which is underlined by the latter's presence at these sessions.

The speaker also emphasized the clear intent our heads of state have consistently shown in their many meetings to link our three countries by means of solid and dependable telecommunications facilities capable of enhancing the unity of our peoples through friendly, brotherly and close cooperative relations.

He pointed out that the objectives laid down by the ministers and the state commissioner at Kigali on 22 September 1984 were aimed at defining the terms of reference for the feasibility and design studies under the project to interconnect the telecommunications networks of our three respective countries.

As for the short-term objectives defined at Kigali, the working group made it possible for the Zairian and Rwandan experts to finalize, among other things, the bilateral telecommunications operating agreement that was signed this Friday at the conclusion of the proceedings. As regards connections between Zaire and Burundi, the delegations of experts from the two countries drew up a joint overall strategy for rehabilitating the Bukavu-Tshomohini--Mujongo-Bujumbura link, which has been inoperative for the past year.

The Rwandan and Burundian delegations, for their part, defined the latest actions to be taken to increase the availability of their link. They also expressed their satisfaction as to the effort already made between the two administrations to achieve uninterrupted operation of their link (Bujumbura--Kigali) since the September 1984 meeting at Kigali.

Continuing his address, the CEO of the ONPTZ outlined briefly the essential recommendations issuing from these proceedings:

- 1) Expansion of the Bukavu-Goma and Bukavu-Uvira microwave systems;
- 2) An increase in the capacity of the Rezatelsat space segment to enable the CEPGL member countries to establish outlets to the other countries of the subregion and the continent;
- 3) Replacement of the Goma and Uvira manual telephone exchanges with automatic exchanges;
- 4) Transfer of the Bujumbura-Kigali link to two new microwave systems, by equipping the Ngozi and Butare relay stations;
- 5) A study of the viability of establishing a microwave link between Cyangugu and Bukavu;
- 6) The building of a new border-zone link between Uvira and Bujumbura with a view to establishing a Bukavu-Uvira-Bujumbura main communications artery.

Citizen Ndokayi thanked the permanent executive secretary of the CEPGL who went out of his way to provide administrative guidance to the experts through the presence at these sessions of citizen Lutuka Isung, division head in the Economic Affairs Department's Communications and Energy Section, who represented the executive secretary.

Before declaring the meeting closed, citizen Endjonga Bokwa Bomow'Onkoy, lieutenant governor of Kivu, in his words suited to the occasion, said that the participants in these sessions had once again strengthened CEPGL and--why not?--African unity in the vital domain of telecommunications, by responding positively to the desire of the three heads of state, namely: Jean-Baptiste Bagaza of Burundi, Habyarimana Juvenal of Rwanda, and Mobutu Sese Seko of Zaire.

9238  
CSO: 5500/163

INTER-AFRICAN AFFAIRS

BRIEFS

SATELLITE SCHEME APPROVED--The summit of the seven major industrialised capitalist nations in Bonn accepted the French project for the erection of earth stations in Nairobi and Ouagadougou to pick up data on observations of crop growth transmitted by a remote sensing satellite, a French presidential spokesman said. According to the Food and Agriculture Organisation, the project is particularly important in the fight against famine. At present there are only two earth stations of this type in Africa: one near Pretoria and the other at Las Palmas in the Canary Islands. [Text] [Paris THE INDIAN OCEAN NEWSLETTER in English 11 May 85 p 8]

CSO: 5500/153

BURKINA

BRIEFS

COOPERATION WITH PRC--The Council of Ministers met today, Wednesday, 5 June 1985, under the chairmanship of Comrade Captain Thomas Sankara, chairman of the National Council of the Revolution and President of Burkina Faso. The council examined items on its agenda. Under the Ministry of Information and Culture, the council approved the establishment of relations of cooperation between the NEW CHINA NEWS AGENCY and the BURKINA NEWS AGENCY. The cooperation agreement between the two agencies will be signed very soon. [Excerpts] [Ouagadougou Domestic Service in French 1900 GMT 5 Jun 85 AB]

CSO: 5500/162

MALI

# EARTH STATION, TV MICROWAVE LINK INAUGURATED

AB232235 Bamako Domestic Service in French 1500 GMT 23 May 85

[Text] Ms Gakou Fatou Niang, minister of information and telecommunications, this morning inaugurated at the Broadcasting House the television microwave link between the earth station of Souleymandougou and the television studios. This television microwave link will enable the Mali Radio and Television Services to transmit satellite television programs, Ms Gakou Fatou Niang said.

[Begin Niang recording] A television microwave link became operational on 17 April 1985 as a result of technical coordination [words indistinct] which will enable the Mali Radio and Television Services to relay satellite television programs via the two earth stations, SL 1 and SL 2 Souleymandougou. I can cite as an example that the television news program telecast by Radio France External Broadcasting Service, and which we have been showing recently on our television news programs, are received by our two earth stations and relayed by microwave to the Mali Radio and Television Services. Moreover, it is possible for us now to receive and directly telecast on Malian television programs shown by any of the 109 members of the world organization, International Telecommunications Satellite Organization, as well as the well-known programs of Eurovision and (?Mondovision). It is nevertheless necessary to point out that a television program costs us 2,630 CFA francs a minute, which explains, among others, the briefness of the programs shown on our screens.

The microwave link was set up with a transmission and receiving circuit with a (?service box) [boite de service] to enable technical handling. The length of the line-of-sight link between the earth station, and the Mali Radio and Television studios is 10 kilometers and required the setting up of a static relay comprising a parabolic dish [dentelle] measuring 2.04 meters in diameter and placed on a 6 meter tower on the terrace of the Hotel de l'Amitie and which is in line of sight with the two earth stations.

The two frequencies chosen for the link are 6400 and 6900 mhz. This link was, therefore, provided by the Mali International Telecommunications Company in technical association with the French firm, Radio-Electric, Telephone and Telecommunications Company. The microwave unit cost about 85 million CFA francs, that is all the components: video, audio, microwave [words indistinct]

I cannot end, ladies and gentlemen, without stressing how grateful we are to the spirit of frank cooperation and mutual aid which enabled the various services of the Mali Radio and Television Services, the Posts and Telecommunications Office and the (Tim) Company to set up this invaluable technical instrument which will broaden Mali's outlook on the world. We thank the international Telecommunications Company for its highly appreciated contribution to the development of our national television network. [End recording]

CSO: 5500/157



MOZAMBIQUE

BRIEFS

ITALIAN TELECOMMUNICATIONS PROJECT--Two contracts worth \$10 million were signed in Maputo yesterday between the Mozambique Telecommunications enterprise and the Italian telecommunications Company. The contracts, part of the first phase of the telecommunications development project, provide for the installation of new digital exchanges in Beira, Chimoio, Tete, Songo, and Manica, totaling 7,400 lines. The contracts were sponsored by the African Development Bank and the African Bank for Economic Development in Africa [as heard]. [Summary] [Maputo Domestic Service in Portuguese 0400 GMT 15 Jun 85 MB]

CSO: 5500/166

16 July 1985

SENEGAL

BRIEFS

CIPHER SYSTEMS--The presidency will receive AG (Switzerland) Crypto cipher equipment valued at 22,050 000FCFA; also to be delivered are Thomson-CSF telecommunications equipment (value: 59,973,172FCFA). [Excerpt]  
[Paris AFRICAN DEFENCE JOURNAL in English May 85 p 10]

CSO: 5500/154

16 July 1985

SOUTH AFRICA

# SABC ANNOUNCES NEW PUBLIC AFFAIRS PROGRAM ON TV1

MB200656 Johannesburg THE STAR in English 19 Jun 85 p 1

[Text] The SABC has lifted the lid--but only slightly--on the new "public affairs" programme which will occupy prime time on TV1 from September.

The new 45 to 50-minute programme, to be screened from 8 pm each day from Monday to Thursday, will incorporate all the current magazine and news background programmes such as MIDWEEK, VERSLAG and NEWSFOKUS/NUUSFOKUS.

On Sundays, the present news review program will be extended from 30 minutes to one hour--and it is details of this new format that the SABC has revealed.

The Sunday programme will work on a four-week roster system covering a variety of new backgrounders, interview programmes, business and economic items and foreign reports. It will work this way:

--Sunday 1:--News from 8 to 8.10 pm, the face-to-face interview programme "Eyeline" and "The Human Factor".

--Sunday 2:--News in Afrikaans, "Rekenskap", a panel discussion, and a report from Washington.

--Sunday 3:--News, "Eyeline" (a Face-the-Press session) and a report from London.

--Sunday 4:--News in Afrikaans, "Om die Waarheid te se" in which Dr Wimpie de Klerk interviews a prominent personality, and the Afrikaans equivalent of "The Human Factor".

The changes are part of a massive revamp of TV1's schedule which will see the main evening news bulletin broadcast at 7 pm--preceded by a weather report--instead of 8 pm, supported by news headlines at 6 pm and a late wrap-up at about 11 pm, with the public affairs programme at 8 pm from Monday to Thursday.

On Fridays and Saturdays the emphasis will be more on light entertainment.

Transmissions will still start at 4 pm during the week and the news headlines will be followed by children's and family programmes until the weather report. After the news there will be a 30-minute entertainment programme, then more light entertainment after the public affairs broadcast.

The language change-over will remain at 8 pm.

The SABC announced today it had sold 15 local productions as a result of the recent Monte Carlo and Cannes television festivals.

A spokesman for the SABC said the countries which had bought the programmes would not be announced as such an announcement might affect sales and contractual obligations.

Nor would the corporation reveal which countries had bought the epic series, "Shaka Zulu", due for international release at the beginning of next year.

CSO: 5500/166

16 July 1985

## SOUTH AFRICA

## SATELLITE SYSTEM TOO COSTLY, SAYS SAPO OFFICIAL

Johannesburg INSIGHT in English Apr 85 pp 39-40

[Article originally published by COMPUTER WEEK, 1 April 1985]

[Text] A satellite communications system for South Africa would not be economically feasible. So says Dawie Malan, senior director, transmissions, of the SAPO. Speaking at the South African Institute of Electrical Engineers' symposium on Satellites in Communications last week, he said: "To have a reliable satellite system, that is, two satellites in orbit and a satellite on the ground, you are looking at an expenditure of about US\$200 million. This can be broken down to \$50 million per satellite and \$10 million per earth station per major centre." Comparing a satellite system as an alternative to a terrestrial fibre optics system, Malan said that the cost for a fibre optic system from Durban to Johannesburg was R27 million and from Cape Town to Johannesburg, R80 million. "On these two major routes you have an expenditure of R107 million for 12,000 channels and for an expenditure of a further R10 million this can be upgraded to 48,000 channels," Malan said. "Compare this with an Intelsat 5 satellite, which will offer 12,000 channels, and an Intelsat 6 offering 30,000 channels at a cost of \$200 million. A domestic satellite system would not be economical for South Africa. It would be less expensive to hire a low-capacity Intelsat transponder at a cost of about \$800,000 a year," Malan said. "We are not the size of the US, where, with the greater distances, satellites become economically viable. South Africa is not all that badly served by the terrestrial system." Malan pointed out that Australia, with its vast distances and low population density, had opted to install a fibre optic system for telecommunications. He said the Orsat satellite system over that country was independently run. "Another definite advantage of the optic fibre system, besides being state-of-the-art, is that the expenditure on it is pushed back into the South African economy, whereas with a satellite system it means that money is being sent out of the country," Malan said. "I think there may be more merit in looking at hiring a transponder from Intelsat."

CSO: 5500/153

SOUTH AFRICA

EKSTEEN CITES PLANNED SABC 'ADJUSTMENTS'

MB211650 Johannesburg Domestic Service in English 1600 GMT 21 Jun 85

[Text] The director general of the SABC, Riaan Eksteen, has announced in Johannesburg that the English and Afrikaans Radio Service and Springbok Radio are to be replaced by two new services, one in English and the other in Afrikaans from the beginning of next year. He says that this is one of the decisions taken by the board of the SABC today with a view to ensuring the long term financial viability of the SABC.

Mr Eksteen told a news conference that the corporation had to reconsider its task as a broadcaster because of the growing number of competitors. He said that adjustments would take place in three steps. A new more competitive product would be put on the air, many more programs and much more allied work would be entrusted to the private sector, and realistic adjustments would be made in management structures and in the allocation of posts inside the SABC.

He said that the new English and Afrikaans services would broadcast from 0600 in the morning until 2130 in the evening, after which the new all-night serious music service, Radio Allegro, would take the air. Regional services would be retained as autonomous regional radio services, but would go off the air at 2130 in the evening after which Radio Orion would take the air. No immediate changes to Radio Five were envisaged.

Referring to the black radio services, Mr Eksteen said that the five bigger services would be retained in their present formats with minor changes. The biggest changes would be made to the four smaller services which had smaller audiences. Radio Venda, Tsonga, Swazi, and Ndebele would broadcast in the morning and evening blocks from the beginning of next year. When radio Venda and Radio Tsonga were not on the air, Radio Lebowa would be broadcast on their transmitters, Radio Zulu would be broadcast on the transmitters of Radio Swazi, and Radio Ndebele and Radio Nebebele would take over when they were not broadcasting.

Mr Eksteen said that there would be greater clarity about the scheduling of programs and the managerial rationalization of television services in a few weeks when an investigation of all services had been completed.

SOUTH AFRICA

FURTHER ON EKSTEEN COMMENTS ON SABC

MB211735 Johannesburg Television Service in English 1600 GMT 21 Jun 85

[Excerpt] The director general of the SABC, Mr Riaan Eksteen, says the corporation has reached a crossroads in its battle for survival and it is in an economic and financial grip that has convinced it that it will have to reconsider its activities drastically. The corporation realizes that it can no longer retain everything it has gained after 49 years as a monopoly. With the coming of subscription television, the SABC will have to make further adjustments in a more competitive environment with new and bigger demands resulting from the participation of new and fitter players. Internally, the SABC has a self-created mass that it had to carry. He said changes would take place in three phases.

While listeners and viewers would still be presented with competitive products, more programs, particularly television programs, will be handled by the private sector. Realistic changes, especially in the management structure of the corporation, will be brought about. He said the biggest changes that would soon be taking place affected radio services.

Mr Eksteen said that the three new services, Radio Jacaranda, Radio Oranje, and Radio Algoa, together with the existing services, Highveld, Good Hope, and Port Natal, will continue to function as fully fledged community radio services. However, they will broadcast until 2130 and not until midnight as announced earlier.

[Begin Eksteen Video] Radio Five, which is pitched at younger audiences will not really be subject to any adjustments as far as its broadcasting hours are concerned. It will still be on the air from 0600 until midnight, when it links up with Radio Orion. This matter is still being considered by the commercial services with regard to cost. [passage omitted covered in referent item] [end video].

CSO: 5500/165

SOUTH AFRICA

## SURVIVAL OF TV1 AT STAKE

Johannesburg BUSINESS DAY in English 14 Jun 85 p 3

[Text]

A MAJOR programme shake-up for TV1 is necessary if the channel is to survive competition from an increasing number of alternatives.

Advertisers will demand more sophisticated media selection in the next few years, says Henry van Rensburg, media director of advertising agency D'Arcy MacManus Masius.

He says: "Television is marked with increasing viewer choice, more broadcast channels, more variety, greater numbers of video cassette recorders.

"This year saw the introduction of TV4 and the control of Subscription TV (STV) being awarded to a consortium."

STV will start transmitting in the PWV area towards the end of next year.

"The SABC has indicated that TV1 is due for a major format shake-up which will make the channel far more attractive to viewers.

"This is imperative if the SABC wishes to stave off the impending onslaught of STV, for it is TV1 which will be the most vulnerable to attack

from the subscription channel in terms of attracting advertising revenue."

In addition to all this choice of entertainment, SABC announced the introduction of a new info-service called Teledata, scheduled to start in November.

Content will consist primarily of news, weather forecasts, consumer affairs, air and ground traffic movements, racing results and stock exchange prices.

Because of its content and format, Teledata could be in direct conflict with the newspaper industry. However, Van Rensburg does not see the innovation as presenting a threat to newspaper advertising revenues.

"It could impinge on small sections in the Press, but potential audiences will also by definition be limited.

"Growing media segmentation increases available media choices, but the demand for measurable media effectiveness will place the spotlight strongly on the availability of media to deliver results. This will cause many more media to go under and only the best will survive."



SOUTH AFRICA

HIGH-PAY TV COST

Johannesburg BUSINESS DAY in English 11 Jun 85 p 2

[Article by Lawrence Bedford]

[Text]

THE Press consortium about to take the plunge into Pay-TV will find it an expensive proposition, warns UIP-Warner MD Timothy Ord.

Ord, whose company is a major film and video distributor, says the new service, due to start late next year, will face higher charges than those levied on the SABC, and the service will be hampered if subject to the same censorship standards.

The Press consortium, which has formed a company called the Electronic Media Corporation (EMC), was granted a licence for the new service last month.

Its target is 300 000 households.

Ord says because the new service is likely to offer newer films than SABC-TV it will have to pay more.

The new channel can also be expected to screen more adult films than SABC-TV.

"If, however, SABC-TV standards of censure apply, it could affect viability."

He hopes its programming will reflect the type of movies the rest of the Western world takes for granted. Half the films rejected by SABC-TV, on age restriction and content criteria, he says, are available at video shops and have been screened at the cinema.

Apart from the cost of material Pay-TV backers would face the problem of trying to stop unauthorised reception.

The backers propose broadcasting a scrambled picture signal which will have to be decoded for viewing by a home unit.

A R30-a-month service rental and R5 fee for the decoder has been mooted.

CSO: 5500/164

SOUTH AFRICA

BRIEFS

EDUCATION SATELLITE--South Africa could buy a R400 million communications satellite to beam educational programmes to the sub-continent, Mr C.M. du Plessis of the Urban Foundation told a conservation conference here today. He sketched a bold plan for communicating literacy, hygiene and agricultural information over a wide sphere. "I believe we will be challenging the seemingly impossible with straightforward means at an affordable price," he said. Such a scheme had already proved successful in India. South Africa's satellite could be placed in a stationary orbit above the Limpopo. "In effect we would then have a TV tower some 36 000 km high from which programmes could be received over the entire sub-continent," Mr du Plessis said. [Text] [Johannesburg THE STAR in English 7 Jun 85 p 6]

CSO: 5500/164

16 July 1985

## ZIMBABWE

## ZIANA GETS GDR RADIO RECEIVER

Bulawayo THE CHRONICLE in English 21 May 85 p 6

[Text]

HARARE — The national news agency, Ziana, yesterday received a \$30 000 radio telex receiver as a gift from the German Democratic Republic's news agency, ADN.

The GDR's ambassador to Zimbabwe, Cde Hans-Georg Schleicher, who made the presentation on behalf of ADN, said the equipment as well as the news service to be received, were an expression of the fruitful co-operation between ADN and Ziana and fell within the framework of an agreement between the two national news agencies.

He said it was the task of both national news agencies to provide each other with first hand information about developments in their respective countries, thus breaking the monopoly which some imperialist media had tried to establish.

"The sources of slanderous information spread in certain parts of the world about the development in Zimbabwe," he said, "are the ones that try to paint a distorted picture about life in the GDR and in other socialist states

and try to sell this so-called information to developing countries."

He said the picture of Zimbabwe being shown in the GDR was not only realistic but sympathetic and understanding.

Cde Schleicher said a book about Zimbabwe would be published in the GDR very soon.

The book, authored by two GDR nationals who visited Zimbabwe last year he said, depicted the history of the country, the struggle by Zimbabweans for freedom and national independence and the development of an independent Zimbabwe.

The radio telex equipment was received on behalf of Ziana by the executive secretary of the Zimbabwe Mass Media Trust, Dr Tim Matthews who said it would prove invaluable in the immense task of trying to build a national news agency from scratch. — Ziana,

CSO: 5500/155

USSR

## CUBAN, OTHER LATIN AMERICAN REACTION TO RADIO MARTI REPORTED

### Radio Termed 'Unsavory Provocation'

LD201511 Moscow TASS in English 1503 GMT 20 May 85

[Text] Havana May 20 TASS -- In its statement the Cuban Government assesses as cynical and provocative the decision of the United States Government to start as of today subversive broadcasts beamed on Cuba. The Cuban people regard as a gross insult the fact that the new U.S. radio station uses the glorious name of fighter for Cuba's freedom and independence Jose Marti.

The statement of the Cuban Government was handed over today to acting head of the department representing U.S. interests in Havana. It is stressed in the statement that an unsavory provocation of the United States was staged at a time when Cuba was taking constructive steps in various spheres to ease tension between the two countries.

The broadcasts of programmes of the anti-Cuban radio station, the statement says, show the obvious intention of the USA to answer rudely the justifiable statements of the Cuban Government about a critical economic position of countries of Latin America and the Third World, about a huge foreign debt which cannot be repaid and about the plundering of the economy of those countries which is made possible by the inequitable system of international relations. There is no doubt that by that step the U.S. Government is striving to create around Cuba an atmosphere of tension and conflicts which would distract the attention of the world public from this serious problem.

Assessing the action of the U.S. Government as perfidy, the Cuban Government announced countermeasures envisaging the revision of the existing agreements between the two countries on a number of questions.

The Cuban Government declares that Cuba will continue developing relations with countries of Latin America and the Third World, will continue the struggle to ensure that the practice of protectionism, destructive dumping against many of their most important export articles be abandoned, the struggle against high bank rates, against arbitrary appreciation of the dollar rate, against other methods of merciless exploitation and plundering of those countries, for the establishment of a new international economic order.

For 25 years the Cuban people have been opposing the great power policy of the United States, its economic blockade and all forms of aggressive actions. The present U.S. Administration should not have the slightest doubt that the Cuban people will continue opposing them as long as necessary, the statement of the Cuban Government stresses.

Protests to UN

LD201858 Moscow TASS in English 1947 GMT 20 May 85

[Text] New York May 20 TASS -- Cuba's permanent mission to the United Nations has declared a strong protest over the U.S. continuing psychological warfare against that country. In a letter to the UN secretary-general in connection with the started broadcasting of a subversive radio service, which will beam programs to Cuba for 14 hours a day, it said that the move aimed to cultivate an atmosphere of tension and conflict around Cuba.

Government Statement Cited

PM231750 Moscow PRAVDA in Russian 21 May 85 Second Edition p 5

[TASS report: "Cuban Statement"]

[Text] Havana, 20 May -- The Cuban Government has issued a statement in connection with the U.S. Administration's provocative act in announcing its decision to begin on 20 May anti-Cuban broadcasts at a new subversive radio station in Florida. This step by the United States, the statement says, is a profound insult that wounds the feelings of the Cuban people. The beginning of broadcasts gives rise to particular indignation because it is taking place in a situation in which Cuba is taking constructive steps in various spheres to reduce tension in relations with the United States. This U.S. action can be attributed to an intention to respond crudely to the Cuban Government's substantiated exposes and pronouncements on the critical situation in Latin America and the "Third World" countries and the predatory plundering of these countries' economies.

There is no doubt that by this step, the document says, the U.S. Government is trying to create an atmosphere around Cuba of tension and conflict to divert attention from this serious problem and is trying to nullify Cuba's efforts in the struggle to find a sensible way out of the critical and explosive situation.

As a sign of protest against this shameful provocation, the Cuban Government has announced certain countermeasures envisaging a review of the agreements between the two countries on a number of questions. It has decided, in particular, to suspend all actions connected with the fulfillment of the agreement on emigration questions signed by delegations from the two governments on 14 December 1984 in New York. All trips to Cuba by citizens of Cuban extraction living in the United States will also be suspended. Cuba reserves the right to broadcast to the United States, explaining Cuba's views on U.S. problems and U.S. foreign policy.

The statement goes on to say that Cuba will continue to develop relations with the countries of Latin America and the "Third World" and will insist on the need to cancel these countries' foreign debt. It will continue the struggle for the renunciation of the practice of protectionism and the destructive dumping that takes place with respect to many of their very important export goods, against high interest rates, against the arbitrary raising of the value of the dollar, against other methods of brutal and inhuman exploitation and plundering of these countries, and for the establishment of a new international economic order.

For 25 years, the Cuban people have withstood the great-power policy of the United States, its economic blockade, and all forms of aggressive actions. The present U.S. Administration should have absolutely no doubt that they will continue to withstand it for as long as is necessary.

Nicaragua's Ramirez Cited

LD211344 Moscow TASS in English 1251 GMT 21 May 85

[Text] Havana May 21 TASS -- The economic blockade of Nicaragua, announced by the U.S. Administration, is criticised by all countries except Honduras which has been turned into an American protectorate, Sergio Ramirez, the vice president of Nicaragua, said here. He stopped over in Havana on his way to Europe where he is to visit Austria, West Germany, Belgium, Holland and Norway. He said his country had been prepared for such a move by the White House. In response the Sandinist government has put the use of the means of production, raw materials and goods, formerly imported from the USA, on a more rational basis. In view of the U.S.-imposed blockade, he said, our country will develop economic relations with other states. He expressed confidence that Nicaragua will be able to find other, more dependable and trustworthy, supply sources.

Speaking of the beginning of operation by Radio Marti, a subversive radio station, the vice president of Nicaragua stressed that in this way the Reagan administration wants to further increase tension in relations with Cuba and in the region as a whole and to thwart the implementation of some Cuban-American agreements.

Referring to his West-European tour S. Ramirez said that he is going to explain to European governments and other political forces Nicaragua's peaceable policy and its striving for a negotiated settlement of the Central American problem and also to seek the establishment and practical strengthening of economic ties between them and Nicaragua.

Chilean CP Leader's Comments

PY210055 Moscow in Spanish to Chile 2000 GMT 21 May 85

["Volodia Comments" by Volodia Teitelboim, member of the Chilean Communist Party Political Commission]

[Excerpts] Dear fellow countrymen, May 20 is the sad anniversary of Cuba's thwarted independence from Spain, of its military occupation by the new empire, the United States, and of the establishment on that island of a virtual Yankee colony under a constitutional amendment that granted Washington the right to interfere with that country at will. This nefarious date, which epitomizes the dark desire to trample over the freedom of Cuba and the ambition to exert tutelage over Latin America as a whole, has been chosen to launch radio broadcasts beamed at the first socialist country in the hemisphere on orders from the U.S. Government.

The infamous anniversary is being used to unleash yet another attack against decency, truth, and historical dignity by deceptively naming the station responsible for these seditious broadcasts after Jose Marti, whose life was devoted to freeing it from all yokes, and who demonstrated his own sincerity by dying fighting for freedom.

The name of the person who had sounded the warning more than anyone else against the enslaving plans of the monster, which he knew only too well, having lived under its entrails for many years, is the least appropriate for an endeavor against which Marti would have risen up with all the power of his freedom-seeking spirit.

This event has awakened feelings of strong indignation and rejection throughout Latin America. Many analysts of U.S. politics are wondering about the reasons for currently enacting the old threat to unleash a radio war against Cuba by broadcasting a daily quota of lies and officially approved distortions for alleged state reasons at the expense of the taxpayers, using funds obtained from the looting of Latin America and the Third World. The answer to this question and the bad choice of dates for starting the broadcasts can only be explained as being symptomatic of the acute crisis that U.S. foreign policy has been going through these last few months, a policy fraught with blunders and mistakes.

Washington's language describing the heroic island has never been lacking in oaths, offences, threats, blackmail, and unscrupulous deceptions. Twenty six years are more than enough to show that [words indistinct] will not scare the Cuba of Marti and Fidel Castro. The isle of dignity will remain a diligent guardian of Latin America's fate. Anyone who thinks that it will kowtow is mistaken. The winds of history will soon turn the radio war against Cuba against those who have foolishly unleashed it. See you later, dear fellow countrymen.

#### Journalist Group's Response

LD230547 Moscow TASS in English 0530 GMT 23 May 85

[Text] Quito May 23 TASS -- The launching of the Radio Marti propaganda service is added evidence of the Reagan administration's desire to subordinate Latin American countries to American influence, the International Organization of Journalists (IOJ) said in a statement issued here. The principles of the journalists' professional ethics, said the statement signed by IOJ leaders on a visit to Ecuador, call for respect for the international community, democratic institutions and public morals. This is why all democratic mass media workers should strongly condemn the American Administration's provocative move. The statement said it is vile and dishonest to use the name of the great Cuban and Latin American patriot to call a radio service broadcasting slanders and smears.

The IOJ leaders called on all mass media workers to strengthen solidarity with Cuba and support the Cuban journalists and people in the face of yet another aggression by American imperialists.

#### Mandarin Broadcast on Radio Marti

OW211425 Moscow in Mandarin to Southeast Asia 1200 GMT 21 May 85

[Text] Cuba's permanent representative in the United Nations has lodged a protest against the United States' new psychological warfare against Cuba. In a letter to UN Secretary General de Cuellar, he pointed out that the broadcasts of the subversive radio station which began operation yesterday was a provocation. The Cuban Government has denounced the Reagan administration by saying that it is trying to create tension around Cuba in order to promote its decision to revise the existing bilateral agreements on a series of problems.

CSO: 5500/1028

USSR

MOSCOW NEWS MEDIA SCORE RADIO MARTI, SEE 'PROVOCATIVE' NATURE

Radio Marti Startup Noted

PM192014 Moscow IZVESTIYA in Russian 20 May 85 Morning Edition p 4

[TASS report: "They Are Preparing Ideological Subversion"]

[Text] Washington, 19 May -- The Reagan administration is preparing new ideological subversion against socialist Cuba. As AP has reported, citing a representative of the U.S. Government, a new anti-Cuban Radio Marti, will go on the air officially on 20 May. Transmitters in the State of Florida, with a total power of 50 kilowatts, have been placed at the disposal of the radio station.

Radio Marti is the brainchild of the U.S. CIA and of enemies of the Cuban people who have entrenched themselves on U.S. territory and from among whom the staff of the new subversive center has largely been drawn.

TASS' Knyazev Commentary

LD192033 Moscow TASS International Service in Russian 1320 GMT 19 May 85

["Washington's Electronic Intervention" -- TASS headline]

[Text] Moscow, 19 May -- TASS commentator Ruslan Knyazev writes:

The White House is commencing a new anti-Cuban campaign. News agency reports, citing spokesmen for the U.S. Administration, say that a large new radio station in Florida, specially designed to broadcast to Cuba, will go on the air on 20 May. It comes under the jurisdiction of the U.S. Information Agency, the principal U.S. Government body for propaganda abroad. In the present financial year alone, 11 million dollars have been allocated for its requirements.

Cubans have been building a new life for more than 25 years now, and throughout this period they have had to live and work amid hostile acts by official Washington. Its anti-Cuban actions began practically immediately after the victory of the people's revolution on the island and embraced all spheres of political and economic relations between the U.S. and Cuba. They have included economic blockade, the direct armed intervention at the Bay of Pigs, provocations involving the illegally held territory of the Guantanamo military base, espionage, subversion, the preparation of assassination attempts against Cuban leaders, and terrorist acts against Cuban citizens abroad.



A major role in these aggressive actions have always been assigned by the White House to psychological warfare against socialist Cuba. The establishment of the subversive radio center in Florida marks the beginning of a new stage in this war. Attempts to feed the Cuban population with misinformation about events inside and outside the country will now be carried out using the latest advances in radio electronics. The traitors to the Cuban people who have been sheltered on American soil by the CIA are to receive a new mouthpiece for their subversive activities. Moreover, the slanderers are not fastidious about the methods they employ; thus, the pirate radio station has blasphemously been named after Jose Marti, a name that is sacred to very upright Cuban.

What is involved in actual fact is a fresh, large-scale act of interference in Cuba's internal affairs. It is no wonder that Henry Gonzalez, member of the U.S. House of Representatives, called the commissioning of Radio Marti "the electronic equivalent of the U.S. armed incursion" at the Bay of Pigs. And there is no doubt that a no less shameful failure awaits this "electronic" anti-Cuban aggression than befell its predecessor 24 years ago.

#### 'Ideological Sabotage' Alleged

LD211333 Moscow TASS in English 1300 GMT 21 May 85

["Behind the Screen of 'Freedom of Information'"--TASS headline]

[Text] Moscow May 21 TASS -- TASS commentator Vadim Kovalev writes:

A spokesman of the U.S. Department of State, Bernard Kalb, in an attempt to conceal the subversive character of the anti-Cuban "Jose Marti" radio station, stated on Monday that the radio station gives the Cubans an opportunity to exercise their principal right to the freedom of information. Kalb also assured that the information to be broadcast would be balanced and objective one. Such is Washington's verbiage behind which are the far-reaching goals of the present U.S. Administration.

Both the Reagan administration and the U.S. public are well aware that the inauguration of "Jose Marti" radio station is in point of fact ideological sabotage against Cuba. Therefore it is no coincidence that the coming on the air of the mouthpiece of anti-Cuban propaganda was preceded by two years of long debates in U.S. Congress, the debates as a result of which the White House still managed to impose its will upon the congressmen.

The directedness of the new radio station can be judged by its staff consisting of 187 inveterate "gusanos" among whom there are, in particular, such traitors to the Cuban people as Humberto Medranom, Ernesto Betancourt, David Bartlett and others. The Reagan administration does not grudge the financing of the subversive activities of the "gusanos", providing them with 20 million dollars at first.

For almost a quarter of a century Washington has been trying in vain to stifle the Cuban revolution by means of various kinds of economic and trade sanctions. This time the Reagan administration has resorted to ideological sabotage in the hope of loosening the system which exists in Cuba. But life shows that the march of the Cuban revolution cannot be stopped by any U.S. intrigues.

PRAVDA Column

PM221114 Moscow PRAVDA in Russian 22 May 85 First Edition p 5

[P. Bogomolev "Commentator's Column: "On a Wave of Subversion"]

[Text] Havana -- Yet another "voice" of the U.S. special services has been added to the poisoners of the airwaves. The blasphemously named "Radio Marti" has begun broadcasting against socialist Cuba from Florida.

Washington's current subversive act is striking because of its particular cynicism. It exploits the name which is sacred to Cubans of the revolutionary patriot Jose Marti and hypocritically links the opening of the radio station to the 83d anniversary of the withdrawal of U.S. troops from Cuban territory. It also represents blatant bragging about the fact that the studios and transmitters belong not to counter-revolutionary emigres but to the official Voice of America and therefore, it is claimed, guarantee the "pure objectivity" of the broadcasts that have begun.

However, the anti-Cuban radio station's first programs have reaffirmed not the "purity" but the crude, slanderous nature of the U.S. provocateurs' new mouthpiece. In this respect, it is a close relative of other subversion centers such as the CIA-controlled Radio Liberty and Radio Free Europe. The aggressive nature of Radio Marti is admitted even in Congress, where Representative H. Gonzalez bluntly termed this subversion the "electronic equivalent of the U.S. armed invasion of the Bay of Pigs."

The "psychological warfare" unleashed against Cuba and the other socialist states is part of the general U.S. propaganda offensive against all bastions of freedom and social progress which refuse to submit to Washington's diktat. Recent months have seen the construction of powerful Voice of America transmitters aimed at India and Afghanistan. CIA radio stations broadcast incessantly to revolutionary Nicaragua.

The U.S. Administration only informed the Cuban Government of its illegal actions a few hours before the radio station started operating. It was a gamble on catching Cuba unaware, but these calculations failed. Terming this provocative act an attempt to create an atmosphere of tension around the republic, Havana immediately announced a number of retaliatory measures. The present U.S. Administration, the Cuban Government statement points out, should not have the slightest doubt that the people of the isle of freedom will continue to oppose aggressive U.S. actions.

The radio warfare unleashed against Cuba by Washington again graphically shows who bears the responsibility for whipping up international tension. No demagoguery can whitewash dark designs, however much certain U.S. circles may try.

IZVESTIYA Dispatch

PM221225 Moscow IZVESTIYA in Russian 22 May 85 Morning Edition p 4

[Correspondent Yevg. Bay dispatch: "Invasion Via the Airwaves"]

[Text] Havana -- On the evening of 19 May, Washington, through its interests section in Havana, suddenly, without prior notification in the press, informed the Cuban Government of the imminent appearance of Radio Marti. On 20 May, at 0530 Havana time, the subversive radio station's call signs began beaming out from the Florida Peninsula.

The decision to set up the station was made by President Reagan way back in September 1981. It was the organizers' intention that the anti-Cuban radio station should somewhat resemble Radio Liberty and Radio Free Europe, that is, an "independent" organ (to wit, under complete CIA control!) that it would not be dependent on the federal budget but would draw its funds from private "charitable" organizations. That plan came to grief in the fall of 1982, when the U.S. Senate rejected the project for fear that Cuba would take countermeasures harmful to many private U.S. radio stations. However, by fair means or foul the White House managed to get its own way in 1983, on the condition that the "respectable" Voice of America should take the new radio station under its wing.

The statement issued by the Cuban Government on the subversive station's appearance points out that this new act of aggression is an attempt to negate Cuba's efforts directed toward seeking a sensible way out of the critical and dangerous situation prevailing in Latin America. This is taking place at a time when Cuba is making constructive moves toward reducing tension in its relations with the United States. The appearance of the U.S. radio station constitutes a most flagrant interference in Cuba's internal affairs and an attempt to denigrate the country's national dignity. In response to this shameful provocation the Cuban Government has announced several countermeasures that envisage revising agreements between the two countries on a number of questions, particularly questions of emigration, and the suspension of all trips to Cuba by citizens of Cuban extraction living in the United States.

... During recent debates in Congress, Henry Gonzalez, a Democrat from Texas, described the appearance of anti-Cuban radio station as a kind of repeat of the Bay of Pigs invasion via the airwaves.

Mass protest rallies against the latest U.S. provocation are now being held throughout Cuba. Their participants are declaring: Our people have opposed the U.S. policy of aggression for a quarter of a century; they have stood their ground and been victorious. They will continue to resist U.S. imperialism.

#### Moscow TV Report

LD230155 Moscow Television Service in Russian 1700 GMT 22 May 85

[From the "Vremya" newscast--S. Kozlenko video report]

[Text] By decision of the U.S. Government, an anti-Cuban radio station has begun subversive broadcasts. This radio station is similar to the slanderous station Radio Liberty, but differs in that it broadcasts in the medium-wave band, contrary to all international laws, which ban narrowly beamed broadcasts in the medium-wave band against another country without the prior notification and consent of its government.

Justified indignation has been aroused among the public by the use of the name of the Cuban poet and revolutionary Jose Marti, a name sacred to every Cuban. The broadcasts will be conducted from studios in Washington via relays on Key West, small islands near Cuba. The initial power of the transmitters is 50,000 watts. Moreover, the broadcasts will be repeated on the shortwave, and the daily volume of broadcasting against Cuba will total 14 hours.

As the statement by the Cuban Government says, the date 20 May was not chosen for the startup of broadcasting by Radio Marti just by coincidence. It is a shameful and sad date, the date of the military occupation of Cuba by the United States. The Clark amendment was introduced into the Cuban Constitution, and this permitted U.S. troops to be brought onto the island at any time. The statement says that for over 20 years the Cuban people have been rebuffing aggressive attacks and all types of threats from the United States. Without a doubt the present administration just know that Cuba will continue to rebuff all intrigues to the extent necessary.

#### Station Linked With CIA

LD231051 Moscow International Service in Czech and Slovak 1400 GMT 22 May 85

[Pavel Bogomolov commentary "From Havana"--recorded]

[Text] Yet another voice of the CIA has joined the poisoners of radio broadcasting; a radio station, blasphemously called Radio Marti, has started its broadcasts against socialist Cuba. This present subversive action by Washington is a surprise in its special kind of cynicism. It involves speculation with the name of a revolutionary and a patriot, Jose Marti, which is sacred for the Cubans, and the hypocritical connection between the beginning of the broadcasts of the radio station and the 83d anniversary of the withdrawal of the U.S. occupational forces from Cuba. It is a rude boast, alleging that the newly set-up studios and transmitters do not belong to the counterrevolutionary emigres, but to the official Voice of America and therefore, allegedly sterile objectivity of the new broadcasts is guaranteed.

The first programs of the anti-Cuba radio station, however, did not confirm sterility, they confirmed the dirty and slanderous character of the new mouthpiece of the U.S. provocateurs. In this sense, it is a double of other subversive centers, such as Radio Liberty and Radio Free Europe, which are controlled by the CIA. The aggressive character of Radio Marti is being acknowledged even by the U.S. Congress, whose one deputy, (?Gonzalez), openly called this subversion an electronic equivalent of the armed U.S. invasion into the Bay of Pigs.

The unlimited psychological war against Cuba and the other socialist states is a part of the overall offensive of the U.S. propaganda against all the bastions of freedom and social progress that refuse to be subjected to Washington's diktats. In the past few months, powerful VOA transmitters aimed at India and Afghanistan have begun to be built. A CIA radio station broadcasts continually against revolutionary Nicaragua.

The U.S. Government informed the Cuban Government about its illegal actions only several hours before the work of the radio station began. They were counting on finding Cuba unprepared. Such calculations, however, failed. Havana, which qualified this provocative action as an attempt to create a tense situation round the republic, immediately announced a number of retaliatory measures. The present U.S. Government, the statement of the Cuban Government says, must not have the slightest doubts that the people of the free island will continue to strive against the aggressive actions of the United States. The radio war, unleashed against Cuba by Washington, yet again illustratively demonstrates who is responsible for the escalation of international tension. Indecent intentions cannot be justified by any kind of demagogy, however hard certain circles of the United States may strive for it.

Station Called 'Subversive,' 'Anti-Cuban'

PM231500 Moscow KRASNAYA ZVEZDA in Russian 23 May 85 Second Edition p 3

[Major V. Nikanorov "Pertinent Remarks": "Electronic Invasion"]

[Text] AP has proclaimed to the whole world that the "Radio Marti" subversive anti-Cuban radio station took to the air for the first time this week. Transmitters with a total power of 50,000 watts have been placed at the disposal of the latest ideological subversion center founded under the auspices of the CIA. Henceforth the Island of Freedom will be subjected to 14 hours of radio barrage a day from the State of Florida.

The U.S. administration is being lavish with money for this purpose. More than \$11 million have been appropriated for "Radio Marti" via the USIA in the current fiscal year alone. The White House has frankly promised that appropriations will be considerably increased in the future. The number of station staffers--already over 100--will also grow. The bulk of them are enemies of the Cuban people who have found refuge in the United States.

What tasks will be resolved by the radio station which has arbitrarily appropriated the name of Cuba's national hero Jose Marti? The very same Marti who dedicated his entire life to the struggle for Cuba's liberation from foreign domination and died in battle against the colonialists. The very same Marti who uncompromisingly exposed the colonialist policy of the North American monopolies. Hiding behind this name, which is sacred for true Cuban patriots, the radio saboteurs intend to broadcast disinformation about the Cuban Government's policy, denigrate the socialist republic's reality, and encourage a mood of mistrust and dissatisfaction among its population. And all this ideological venom will be served to the audience in the garish packaging of music programs and baseball game reports.

The creation of the new anti-Cuban subversion center is yet another link in the chain of furious attacks launched by Washington against the Island of Freedom. Reactionary circles in the United States have not abandoned their hopes of eliminating the first socialist state in the Western Hemisphere. Stooping to the basest methods and means, the imperialists constantly attempt to realize these hopes. Yet another black line has now been added to the list of U.S. armed and ideological subversion against Cuba. It is worth noting what H. Gonzales, member of the U.S. Congress House of Representatives, said in this connection, describing "Radio Marti" as "the electronic equivalent of the U.S. armed invasion of the Bay of Pigs."

The U.S. administration's provocative action has aroused great indignation on the Island of Freedom. The Cuban Government has issued a protest declaration. "The Cuban people," it says, "have resisted for 25 years the U.S. great-power policy, its economic blockade, and all forms of aggressive actions. The incumbent U.S. administration must not have the slightest doubt that they will continue to resist it for as long as may be necessary."

Radio Marti Officials Quoted

LD251047 Moscow World Service in English 2300 GMT 24 May 85

[Excerpts] It has been 5 days since Radio Marti, a new radio service broadcasting from United States to Cuba, went on the air. Here are some details.

This move has brought a flood of questions. Most wonder what the big idea is. According to John Sober, a member of the new station's advisory board, Radio Marti will be reminding Cubans of the freedom they have lost. As for George (Moskinosa), he has declared that Castro assassinated the liberty and welfare of the Cuban people. We cannot kill their hope.

Cuba is a permanent reminder of what a backward nation in the Western Hemisphere can achieve if it is determined to be independent and keeps to its social system. Its example inspires other Latin American nations to try to rid of poverty, backwardness and dictatorships. It must be become of this that the United States has been harassing Cuba almost from the very first day of its revolution. It is trying to bring Cuba to its knees with the help of an economic blockade and the military invasion; terrorists have conspired to murder Cuba's leaders and have committed acts of sabotage against its industry and agriculture.

At the moment the United States is acting in much the same way against Nicaragua. Radio Marti signals yet another round in anti-Cuban actions, this time psychological. It is an attempt to achieve with the help of propaganda what proved to be impossible to achieve by force of arms and trade sanctions.

### Havana Correspondent's Report

Moscow KOMSOMOL'SKAYA PRAVDA in Russian 31 May 85 p 3

[Article by Havana correspondent Yu. Stroyev: "In The Trenches of Radio Warfare"]

[Text] Yet another "voice" of the American special services has been added to those sent over the air. From the state of Florida a new subversive radio station has begun broadcasts against Cuba. But the designs of its "masters" are doomed to fail.

At 5:20 in the morning, when Cuba had still not awakened, American announcers congratulated their peacefully sleeping "listeners" on 20 May, the day 83 years ago when U.S. forces replaced the Spanish colonizers on the island. Thus without a preliminary announcement a radio station burst onto the air, whose appearance was at once regarded in the Cuban and foreign press as the beginning of a new stage in the U.S. ideological war against the Island of Freedom.

Hardly had the Cuban revolution been victorious when, on the territory of the U.S., counterrevolutionary radio stations began to grow like mushrooms: "Radio Trinchera", "Voice of Independent and Democratic Cuba", "Radio Swan", "Progressive Youth of Cuba" and a whole number of other radiostations which appeared and then disappeared for good. In order to hide their own participation, Washington turned these over to "gusanos" who each time quickly brought them [the radio stations] to ideological bankruptcy and completely discredited them.

None the less, the idea of a radio war against the Island of Freedom did not leave the American specialists in the area of ideological diversions. In May 1980 the "Santa Fe Committee", formed of a group of ardent anticommunists, worked out a proposal for the creation of "Radio Free Cuba" under the direct control of the United States government.

When Reagan assumed the post of president, the "Santa Fe" document became the basis of the Latin American policy of the new Administration. One of its first steps was the creation of a "presidential commission on radio broadcasting to Cuba" which was tasked with developing the necessary recommendations for creating and bringing to life this masterpiece of anticommunism.

At the end of 1981 the Reagan administration launched a massive operation in both chambers of Congress to whom it presented the project for creating an anti-Cuban radio station. The project, calling for the creation of an independent radio station similar in form and like "Radio Free Europe" and "Radio Liberty", despite the efforts of the administration, was rejected by the Senate. Then came the idea of creating a radio station within the framework of "Voice of America" which, after long debates, was adopted by Congress in September of 1983.

At the end of 1983 two Americans showed up in Miami and demonstrated great interest in the Cuban emigres. They met with leaders of the anti-Cuban organizations and visited the military training camp of the "gusanos". William Marsh, former employee of "Radio Free Europe" and chief of the general

information department of "Voice of America" and Seth (Corpsey), political director of "Voice of America" and reports compiler for U.S. Secretary of Defense Caspar Weinberger, searched the state for employees. Almost 180 people were selected.

And now--the first salvo of slander, amplified by multi-watt transmitters. This evening, along with journalists from the newspaper JUVENTUD REBELDE I visited the Mariana Grajales Park where school children and students, workers and employees of the Cuban capital gather. One of the upperclassmen read a statement from the Cuban government regarding the brazen radio provocations. Hundreds of voices were raised in a unanimous chorus of indignation.

"It is already a quarter of a century that we are living under the conditions of unceasing threats, pressure and blackmail on the part of the U.S.", Bernardo Cardoso, a construction worker, told me. "Who does Reagan want to fool? Today we woke up at the same time as the beginning of this new ideological war. Now each educational or work center will become an ideological bastion of socialism, which will not be subjugated by force to imperialism."

But the reaction of the Cubans to the appearance on the air of the subversive "voice" is not limited to indignation and anger regarding the brazen provocations. Evaluating the efforts of the new crusaders in the ideological war on the short waves, they do not hide their irony. Amplified many times by powerful transmitters, the complete groundlessness of the organizers and inspirers of this adventure appear before the Cubans. It was clear...there was simply nothing for them to say. Banal "exposes" in the political news section, cheap radio novels and vulgar humorous reminiscences told about those Cubans which remained in the memory of the Americans who left the island in 1959. For the obscurantists in Florida time stood still. But in Cuba it went forward.

Failure. Undoubtedly and completely. Such is the unanimous evaluation of all those with whom I was able to talk in these days about the hot "radio topic".

#### Moscow TV Condemns Station

LD012218 Moscow Television Service in Russian 1252 GMT 1 Jun 85

[From the "Community" Program, presented by Dmitriy Colovanov]

[Text] A further date has gone down in the calendar of black dates of the psychological war waged by the forces of reaction against the countries of the socialist community. On 20 May, at 0530 Havana time, the callsigns of a new subversive radion station took to the airwaves from the peninsula of Florida. This is an openly subversive action by Washington. By the admission of U.S. Congressmane Henry Gonzalez the entry onto the airwaves of the anti-Cuban radio station can be called, and I quote, the electronic equivalent of the U.S. armed incursion in the Bay of Pigs. The very first programs of the



subversive radio station have shown that they are full of hatred for socialism, however, just like other voices based under the roof of the USIA--the U.S. Information Agency. Charles Wick, the director of USIA and Californian friend of the U.S. President, loves to brag a little that his department today stands at the center of U.S. foreign policy efforts. Whether this is true I don't know, but the USIA budget is rising at unprecedented rates, even for the United States. Last year it leaped by 42 percent straight off, and reached the sum of \$649 million, and this year had nearly approached \$1 billion. Two hundred USIA departments carry out subversive activity in 126 countries. The Voice of America radio station, the agency's chief mouthpiece, has spread its transmitters, of which there are more than 100, on all continents and broadcasts in 42 languages of the world.

The pivot of this broadcasting has been and remains attacks on the Soviet way of life, on socialism, and of course, apologetics for capitalism, skillful juggling with facts which help to hide the truth about the so-called free world, and of course attempts to set one side of the community off against the other. The value of reasoning of this kind is not great. Here is an example. At the time when all voices were crying about the crisis of the CEMA countries, the average annual rise of the volume of production of all our states was considerably higher than in countries of the European community. The once intelligence general (Gellin), former leader of FRG special services, noted that it is possible to poison the inhabitants of one village with a small pinch of potassium cyanate thrown down a well, and millions with a well-finished lie broadcast by radio. Indeed, it is the recipe according to Goebbels, only at the contemporary stage.

Subversive radio stations like Free Asia, Radio Free Kabul, Radio Free Europe, anti-Nicaragua broadcasting, and the subversive anti-Cuban radio station carry out their dirty work using methods which have long been known as terror by words. Their aim is clear, to undermine our cooperation, drive a wedge between countries of the community and slow the process of building a new life in our countries. I say frankly, this is an attempt using unsuitable means. And evidence of the fact that the efforts of our enemies are futile is in particular the example of the lasting friendship and cooperation of our country and Cuba for a quarter of a century already.

CSO: 5500/1028

EUROPEAN AFFAIRS

EUTELSAT TO PROPOSE TV SATELLITE FOR EUROPE

Paris ELECTRONIQUE ACTUALITES in French 17 May 85 pp 1, 15

[Article by D. Levy: "From Telephone to TV: 'Eutelsat About to Propose a TV Satellite for Europe,' we were told by Mr Caruso, General Secretary"]

[Text] In a few weeks, Eutelsat (European Satellite Telecommunications Organization) will acquire its quality of intergovernmental organization by right, now that the agreement binding it to the governments has been signed and ratified by all West European countries.

Its provisional status, however, never prevented it from establishing a European satellite telecommunications network, "using satellites made entirely in Europe," as Mr Caruso, Eutelsat general secretary, pointed out during our conversation.

The system is designed to provide public telecommunications services (telephone, telex, low data throughput), digital business links (SMS [expansion unknown]) and television broadcasts. The latter service is assuming such importance that Eutelsat is considering the feasibility of expanding its field of activity to include direct TV broadcasting. With this end in mind, the organization will propose to its members to operate a television satellite capable of covering France, the FRG, the Benelux, Switzerland, Italy as well as the United Kingdom and Austria.

Interim Eutelsat, which was created in June 1977 by the telecommunications administrations or entities belonging to the CEPT (European Conference of Post and Telecommunications Administrations) to develop the space sector of the European satellite telecommunications system (ECS), is now living its last weeks as "provisional organization." Next August at the latest, it will become an intergovernmental organization by right.

With 24 member countries, Eutelsat is operating on a commercial basis, "and this is why it works," Mr Caruso indicated. Nevertheless, the governments retain the right to examine and control all activities of the organization, whose shareholders are the telecommunications entities of the member countries.

Eutelsat, which is headquartered in Paris, consists of 140 people--two thirds of whom are engineers--headed by the (elected) general secretary, at present Mr Caruso.

The European satellite telecommunications network now has two satellites in service ("Eutelsat 1 F1 and F2"). It will be complemented by a third "Eutelsat 1 F3" flight model to be launched next September. This setup is designed to provide three types of services: telephone (and low-speed data transmission), business communications (multi-service system by satellite or SMS) and TV-program broadcasting to cable networks on a national and international basis.

The third service, which at first was marginal, has assumed considerable importance as a result of growing demand. As a consequence, Eutelsat is allocating to it "at least about 20 repeaters which are or will be used for TV distribution throughout Europe," according to Mr Caruso. It is only fair to point out, in return, that this service has considerably improved the financial position of the organization, maintaining high income levels, so that the investments of the Post and Telecommunications Administration will be amortized already on 1 January 1987. In addition, since 19 November 1984, Eutelsat is relaying Eurovision programs, under a 10-year contract signed with the UER [European Radio Broadcast Union].

We can also say that television made it possible to make up for the technological gap--resulting from the introduction of the AMRT [expansion unknown] technology--postponing to the end of this year the opening of telephone service to the public. Ground support facilities now include 8 standard stations in service in 8 European countries (France, Great-Britain, Sweden, the FRG, Italy, Austria, Portugal and Spain), a number that will be increased to 12 by mid-1986 and to 16 by the end of 1986, plus 180 non-standard stations used mainly for television.

"The importance assumed by television has induced us to consider the feasibility of expanding the field of activity of Eutelsat to include direct broadcasting," Mr Caruso told us, adding: "This new service would be a financial boon to all European countries if they would agree to use a single satellite to serve all of them instead of one satellite per country, as some are planning to do."

#### Meeting on Direct TV Broadcasting in June

"We believe that a satellite with a capacity of 16-20 TV channels could meet all European needs. It would take up the 19° East position allocated to a group of European countries by the UIT [International Telecommunications Union] Administrative Conference on Space in 1977. The countries involved could be France, the FRG, the Benelux, Switzerland and Italy as well as Austria and the United Kingdom," Mr Caruso indicated.

According to the general secretary of Eutelsat, "this system, whose cost per channel would be about 1/10 of the equivalent cost of a purely national system, could be manufactured from already existing European technologies, such as TDF 1/TV Sat or Olympus." Under the timetable considered, it would be placed in service late in 1991 or early in 1992, so that the satellite could,

among other things, replace existing systems such as TDF 1 and TV Sat, and maybe also the Tele X system of Scandinavian countries. Thus, after the national experimental or pre-operational programs already launched, Eutelsat could offer a second generation of jointly-operated satellites whose cost would be very attractive in terms of satellite, launching, orbit control and management...

"We have sensed a keen interest on the part of various countries," Mr Caruso pointed out, "and as a result we have organized a meeting with these countries around 24-25 June, to determined whether we should proceed with this project."

#### A Video Conferencing Network

Until it takes on this new satellite, Eutelsat is preparing the second generation of telecommunications satellites. The call for tenders for "Eutelsat 2" was issued, bids are expected to come in next month, and the contract is expected to be signed by the end of the year, so that the first satellite (five are planned) would be launched in the fall of 1989.

This second generation of 11-14 GHz satellites will not be marked by major technological innovations, but by an extension of capacity and frequency bands. "We shall need a greater capacity for business services, which by then will have reached a considerable size," Mr Caruso predicted. This is why "Eutelsat 2" will include 16 repeaters, all of which will be able to operate under eclipse conditions (when the satellite crosses the shadow of the Earth), compared with 9 repeaters for "Eutelsat 1," only 5 of which can operate under eclipse conditions. Technological innovations (20 GHz, on-board switching, service life of 10 years instead of 7) will be introduced in the third "Eutelsat" generation scheduled for 1993-1995. Already, Eutelsat has contacted the European Space Agency and manufacturers to ensure that research and development work will fit in with this goal.

As far as business services are concerned, Mr Caruso believes that "Eutelsat 2" will absorb all the international traffic of "Telecom 1." As is known, this traffic is currently divided between the French satellite (which rented a certain capacity from Eutelsat) and the Eutelsat system. Note that Eutelsat will soon offer a video conferencing network that will connect the cabinets of the prime ministers of the 10 EEC countries. A first demonstration will take place in June, from Milan, on the occasion of the chiefs of state's meeting. Finally, Eutelsat is developing an "Apollo" network to connect national European documentation centers.

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EUROPEAN AFFAIRS

NORDIC COUNTRIES STUDY POSSIBLE LEASING OF INTELSAT SERVICES

Helsinki HELSINGIN SANOMAT in Finnish 10 Jun 85 p 15

[Article by Vesa Santavuori: "Nordic Countries May Lease Intelsat Services. Telecommunication Directors Studying Joint Venture"]

[Text] After their mutual discussions, the directors of the Postal and Telecommunication Services of Norway, Sweden, Finland and Denmark have been assigned to study the possibility of leasing Intelsat's broadcasting capacity for joint use of the Nordic countries, reported SVENSKA DAGBLADET, an independent right-wing newspaper, on Sunday. Intelsat is an international communication satellite organization.

If the project is implemented, it would enable the countries concerned to transmit their total of six television channels to the neighboring countries, according to the original Nordsat model and using the framework of cable television.

"I can confirm that the proposal was discussed during the past week when the directors of the Postal and Telecommunication Services of Norway, Sweden, Finland and Denmark met," reports Tony Hagstrom, the director of Sweden's Postal and Telecommunication Services, in a statement made public on Sunday.

Hagstrom emphasizes that the proposal discussed implies the joint desire of the administrations and the Postal and Telecommunication Services of the Nordic countries to implement the project. According to reports from Stockholm, the opportunity now available via Intelsat was not disclosed conclusively until a couple of weeks ago.

Politically Sensitive Issue

The project is politically sensitive, since, after long and difficult negotiations, Norway, Finland and Sweden are now almost ready to reach a final agreement on the so called Tele X satellite project. Beginning at the end of 1987, it would offer, for a test period of three years, two television channels, into which the Nordic countries would collect programs made by the television companies of these countries.

In the next few days the representatives of the cabinets of the Nordic countries are to discuss and, eventually, also make decisions on the Tele X project. On Sunday, there were opinions in Stockholm that the Intelsat approach may bring new problems to the complicated issue of Tele X.

If measures are taken to implement the Intelsat project, it will make it possible in Norway, Denmark, Sweden and Finland as well as elsewhere in Europe to receive the television programs of all the Nordic countries--i.e. a total of six channels--with a relatively ordinary parabolic antenna.

The channels could be made available in areas which already have access to cable television. The operation could also be started relatively soon, i.e. during the year 1986.

According to information from Sweden, the country particularly interested in promoting the project is Norway. It is Norway's aim to expand its cable television network as much as possible. One incentive would be that "the cable television people" would receive both channels of the Swedish television for the low additional fee of 50 kronor per year.

The director of Finland's Central Board of Post and Telecommunication, Pekka Tarjanne, confirmed on Sunday that the proposal was discussed last week.

"However, at first the Nordic countries must find out, among other things, what is the attitude of the broadcasting companies of the countries in question concerning the project, and to inform the ministries concerned," said director Tarjanne.

Tarjanne does not believe that the Intelsat approach will complicate the future of the Tele X project, since two separate systems are concerned.

"There are already Intelsat channels in the sky and they can be quickly activated. The experience from them could be used, particularly, for example in projects like Tele X and Nordsat," estimated Tarjanne, the director of the Central Board of Post and Telecommunication.

Traffic Minister Matti Luttinen had not yet had a chance during the weekend to study the memo made of the meeting of the directors of the Postal and Telecommunication Services. He received it on Friday, prior to his departure for Stockholm, where he had discussions with Bengt Goransson, Sweden's Cultural Minister. The government of Sweden announced on Friday that it approves of Finland's budget proposal for Tele X.

"We must study the matter thoroughly in Finland before making any decisions," said Minister Luttinen on Sunday. According to him, Intelsat might replace some, but not all, of the operations of Tele X, which is a radio broadcasting satellite and stronger than Intelsat.

#### International Organization

Intelsat is an international communication satellite organization, currently comprising over one hundred member--countries. The organization purchases the satellites, launches them in the orbit and collects the costs from the member-countries, according to their use of the satellites. The members also participate in financing new projects.

Intelsat's first communications satellite--at the time called artificial moon--was launched into orbit 20 years ago. It was capable of transmitting 75 simultaneous telephone connections between Europe and the United States.

The current Intelsat 5 transmits 12,000 telephone connections and all inter-continental television programs of the broadcasting companies. Soon Intelsat 6 will be launched into space.

Finland joined the organization at the beginning of last decade.

For example, a call to the United States first passes along a cable to the vicinity of Gothenburg, Sweden. From there it continues via transmitter to Intelsat 5 satellite above the Atlantic. From there it proceeds to the west-coast of the Atlantic and continues its journey again along a cable.

The Eastern bloc has its own corresponding joint project, called Intersputnik, which transmits telephone calls, telex messages and radio programs via satellites. However, this year the Soviet Union has considered joining Intelsat.

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FRANCE

# OPERATING COMPANY FORMED FOR TDF SATELLITE SYSTEM

Paris REVUE AEROSPATIALE in English Jun 85 pp 17-21

[Interview with Jacques Pomonti]

[Text]

**'Aerospatiale':** The Prime Minister chose you for the task of setting up a company to market French direct-broadcast satellites. How do you envision the structure of this future concern and what is the situation as regards possible users?

**Jacques Pomonti:** Yes, the Prime Minister has indeed entrusted me with the job of implementing the direct-broadcast satellite program. I'm responsible for finding partners and associates - satellite operators and customers too. In some cases of course the same people could fulfill both roles. I'm on the lookout for them both in France and abroad. Another part of my work is to define and then set up all the arrangements for financing the program.

We're by now well on the way to forming a European satellite operating company. As you already know, one-third of its capital will be provided by French public funding and the rest will come from private sources - it will therefore be a private concern. The remaining two-thirds of the capital will come from Europe and 15-20% of it will be French private capital. Which means that France and the rest of Europe - western Europe, of course - are providing the capital on a fifty-fifty basis.

We've already contacted most of the potential users and are now entering Phase Two - definitive consolidation. We can't say just exactly how the company will be made up, but all this will become clear when negotiations are

completed and the final decisions as to company structure and membership have been reached. As you know, we've decided on May as a suitable time for founding our company, once everything has been finalized.

**'Aerospatiale':** A high-power, heavy satellite - this choice has come in for a lot of criticism. How do you feel about it?

**Jacques Pomonti:** This controversy goes back a long way. Sixteen years ago in 1969 Mr Chaban-Delmas, who was Prime Minister at the time, instructed me to make a study of audiovisual techniques and their development potential in view of all the new technology then becoming available. I remember the report I submitted to him at the time. It dealt naturally enough with video recorders and video cassettes, but with cable TV and satellite broadcasting too. So, you see, I know all about the rivalry between the so-called 'heavy' high-power satellite whose signals can be picked up on inexpensive reception equipment well within the means of most households and low-power so-called 'telecommunications' satellites which need ground relay stations to retransmit the signals. I don't have any deep personal feelings about it one way or the other from the technology standpoint because the final choice has been made with political and economic considerations in mind rather than the engineering aspects. In France we chose the high-power type of satellite in order to achieve a breakthrough on the world market.



Fearlessness and the will to succeed were the attitudes that motivated us to take up the challenge. And succeed we will! I - as an instrument in this choice - have only one aim in view: the success of the project. After having been round the world, I'm becoming more and more aware every day that the odds are very much in France's favor - all the more so as the competition gradually weakens... We're well in the lead now and in a strong position to make a success of our venture.

**'Aerospatiale':** How many European viewers will be able to receive broadcasts via TDF-1?

**Jacques Pomonti:** Potential coverage by TDF-1 is really very impressive. We're just completing a study on the types of population groups falling directly in the satellite's coverage cone. Even the most limiting cone would cover about 170 million viewers. And if slightly more expensive reception equipment were used then we could quite easily reach 330-340 million. Here I must draw your attention to three distinct parameters which must be considered together: first, total population size; second, the revenue available per capita; and third, the consumer's motivation to buy and his resulting purchasing potential which even a minimum amount of TV coverage will increase to a greater extent by comparison with audiences in, say, North America and Japan. So it becomes clear that, economically speaking, western Europe is ideally suited to a project such as ours.

**'Aerospatiale':** Who will actually be running the four TV channels?

**Jacques Pomonti:** I can't give you a detailed reply at this time. It will depend on a combination of how imaginative, able and powerful our European associates turn out to be... Most of the discussions I've taken part in tend toward some sort of common concept of how the satellite is to be used. In other words, use of the satellite would therefore not be divisive but constructive, involving a basic common ruling designed to ensure the greatest possible degree of complementarity and to discourage mutually destructive competition. The TV networks made available thanks to the satellite should appear as a coherent whole to European viewers and more appealing than their existing national TV channels. At the same time

we must be sure to use all the system's very remarkable qualities to the full - excellent picture and sound quality, plus the possibility of broadcasting the same program in several languages thanks to a multiple-soundtrack capability.

**'Aerospatiale':** Agreement on European standards for direct-to-home broadcasting has recently been reached. Can you tell us something about this?

**Jacques Pomonti:** The choice of the 'D2 Mac Paquets' standard is a successful one - but again I wouldn't say so from a technical standpoint. Firstly, I feel glad that a clear-cut decision has been made because it means that the way is now clear for manufacturers to get on with their work. Moreover, the choice of this standard has many advantages, technically speaking - picture quality, for example, and the possibility of four to eight soundtracks per channel. This is how we'll be able to broadcast in several languages! And we can offer an exclusive service - stereophonic sound, which can only be achieved by satellite because traditional ground-based broadcasting is prey to so much interference that stereo is impracticable. Another advantage is that we can also link up with cable networks.

**'Aerospatiale':** The TV program market will obviously expand once direct broadcasting is under way. Can you give us an estimate of just how big this market will be?

**Jacques Pomonti:** I can't commit myself to any definite figures right now, as I'm sure you'll appreciate... It's too soon for that and any answer would only be a very approximate one. But what I would like to say here is to what extent I've been struck by how quickly things have developed during the past few weeks. It's as if it had suddenly dawned on everyone that the satellite will soon become a reality - and is going to mean big business!

There's increasing activity concerning arrangements for the supply of programs from all over the world. Top companies and consortiums are showing a keen interest - the satellite is obviously going to be a major new outlet for TV programs. Because of this, one of our top priorities is that the satellite should foster both creativity and higher production standards among European TV companies. Our new company, which is

in the process of being formed, as well as all the satellite-related projects and developments, will not only be of concern to those with a financial stake in the venture but to producers, directors and all those involved in the creative and artistic side of TV.

At the present time Europe depends to an increasingly great extent on American TV programs (in 1983 France spent over 800 million francs on imported material). At the same time TV program production costs have risen sharply worldwide and consequently far more extensive markets than those offered by any one European country need to be covered if operations are going to be cost-effective.

Conversely, American-produced programs immediately pay for themselves on the domestic market, which already accounts for 30-35% of their total outlet. The US is also in a position to export its TV programs at very competitive prices. Europe, consisting as it does of so many different countries, can't put up any unified resistance to this sort of competition - as yet. But the European satellite should prove to be the means toward the creation of European TV for a European market. And it's high time, too, since European co-productions have apparently decreased in number during the last few years - by some two-thirds, according to figures released by the Brussels commission. So the sooner this trend is reversed, the better.

**'Aerospatiale':** *TDF-1 is ordered and TDF-2 is due to be soon. What are the deadlines?*

**Jacques Pomonti:** TDF-1 already exists, and I've seen it in production at the Cannes and Munich facilities. TDF-2 is on order, in fact the Prime Minister told me so on December 26 last when he gave

me this assignment. The first orders came in as planned in February this year. TDF-1 will be launched in July 1986 and TDF-2's launch is scheduled for the end of 1987 or the beginning of 1988.

**'Aerospatiale':** *What's the outlook for the satellite and its role in broadcasting during the next few years, in your opinion?*

**Jacques Pomonti:** Any activity in television is fraught with risks and beset by all kinds of competition. Certainly no-one will be able to afford to rest on their laurels... Gaining ground will depend not only on what we do but how we do it and when. We must rid ourselves of the monopoly mentality and all that it entails. A thoroughly professional attitude and a regard for speed - which is becoming more and more of the essence these days - these are what count most. We must always seize opportunities as they arise and, moreover, always aim to excel. Our viewers will want the best and we mean to give them just that.

The satellite is going to give us a golden opportunity to create new patterns and standards in TV production. And we'll be almost alone in this as our satellite has no rivals in its class and I can say with certainty that it's attracting a lot of attention worldwide - some of it not untinged with envy...

We'll be three years ahead of everyone else. I must say here that, unlike Britain's Unisat program which has suffered quite a setback partly through a lack of funding, we've been fortunate enough to have state backing and encouragement which have helped us enormously and which we regard as an endorsement of our work. □

CSO: 5500/2656

ICELAND

AUTOMATIC MOBILE PHONE SYSTEM TO START NEXT YEAR

Reykjavik MORGUNBLADID in Icelandic 26 May 85 p 28

[Article: "Automatic Mobile Phone System to Be Put into Operation Next Year"]

[Text] The Icelandic Post and Telegraph Office has decided to establish a mobile telephone system that will make calling directly from automobiles both within the country and between countries possible. The system is a Scandinavian one, the so-called NMT [Nordic Mobile Telephone] System that has been in service in Nordic countries in years past and is considered extremely well developed. Effort is being made to have the system in use by the middle of next year, according to Haraldur Sigurdsson, Icelandic Post and Telegraph Office chief engineer.

In this country mobile phones were under development for about a year before the Icelandic Post and Telegram Office began offering mobile station service for the telephone equipment. There are now some 350 customers using the service. The mobile phone operates more or less the same as the old rural telephone. One first calls a central station and is connected through it. The main central station is located in the National Telephone exchange in Austurvollur, and that exchange is connected with other stations located in every part of Iceland. The new system is not intended to replace the mobile telephone service, according to Haraldur Sigurdsson, so that those who have purchased mobile phones need not fear that they have wasted their money. And why has the automatic system not been put into service immediately? Haraldur Sigurdsson answered that question as follows:

"We planned to develop the equipment of the system further. Later it emerged that we needed to expand the phone station in Mulanar and increase the number of automatic lines leading outside Iceland. We then thought it suitable to take into consideration the possibility of establishing a completely automatic mobile phone system.

The NMT System, or Nordic Mobile Telephone System, is in our view one of the most developed in existence. Sweden, Denmark, Norway and Finland have designed the system jointly and sold it to many countries. The American system is not so versatile. It does not, for example, allow the possibility of direct overseas calls. The four Scandinavian nations are using one and the same system and that

is, in and of itself, a technical precondition for Iceland to be connected with them. But that will not happen immediately. We will have to make arrangements in this area in the future."

--What are the principle advantages of this system, other than that it makes direct calling possible?

"One advantage is that the number of channels will increase drastically. It is possible, for example, with the equipment of the system that we are using today, to serve only 5 lines at a time in the Reykjavik area, but we will begin with 22 lines in the new system and increase this number rapidly to 44.

Another advantage of the NMT System is that when a user gets out of range of one station the conversation will be automatically switched over to that station or line through which it is best transmitted. Users will thus always be guaranteed good connections, even though they are moving while their conversations go on.

Finally, this system offers all the benefits of the so-called AXE System with six built-in new number lines. I am talking about certain technical activities such as making the telephone ring, use of abbreviated numbers, automatic transfer of calls, data transmission and even image transmission."

"Everyone's Robber of Peace"

Mobile phone technology is advancing very rapidly and it will perhaps be the case before long that every person will be able to use a telephone the size of a pack of cigarettes. In fact there are already signs of such telephones in the pagers used in some places for limited areas, for example, within companies, hospitals and institutions. Doctors call this equipment "robber of peace" and in fact there is little doubt that the apparatus is in fact a major violator of peace. The "robber of peace," in its simplest form, does no more than produce a tone to indicate that the receiver should call a certain number to receive more detailed information. Such paging systems are in use in Iceland at various places, for example in hospitals and at the aluminum smeltery and silicon-iron plant. The Icelandic Post and Telegram Office, on the other hand, has decided to set up a system that will make it possible for the public itself to use such telecommunications possibilities. To achieve this it is necessary to send out the required equipment to all parts of Iceland, particularly to stations.

According to Haraldur Sigurdsson, it is a comparatively easy thing, from a technological point of view, to start such service and he thinks that it would be best and least expensive to use the extra band settings of the FM-broadcasting system for this purpose. Sweden has offered such service since 1978 and there are now 32,000 persons using the service.

Paging equipment is constantly being improved and it is now possible to send numbers and letter messages in place of an aural tone and Sweden is going to offer a pager with a text of up to 80 characters. That will certainly increase communications possibilities, but we are still talking here, as before, on one-way communication and direct communication cannot take place in that manner.

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16 July 1985

## ICELAND

## BRIEFS

COUNTRY'S FIRST OPTIC CABLE--Norwegian Fiber Optics Inc, which is owned by Electrical Bureau and its affiliate, Norwegian Cable Works of Drammen, has landed a contract for Iceland's first fiber optics cable. It will be 30 kilometers long, will be used for telephony, and contains six optical fibers, each of which carries 1,290 telephone channels. The firm has also sold a fiber optics cable to the United States. It will be used to connect a computing center with its subsidiaries. Administrative Director Hans Nordby informed AFTENPOSTEN that the cable will be manufactured at Norwegian Cable Works' production facility in Hokksund. The firm has just fulfilled an order from the Norwegian Telephone System involving 53 kilometers of cable. This cable will connect Oslo and Drammen. The firm is currently working on export projects to Ireland, West Germany, Singapore and United States/Canada. [Text] [Oslo AFTENPOSTEN in Norwegian 11 Jun 85 p 41] 9584

NORWAY

# TV FROM OTHER NORDIC COUNTRIES TO BE AVAILABLE ON CABLE NETS

Oslo AFTENPOSTEN in Norwegian 11 Jun 85 p 5

[Article by Einar Solvoll: "Nordic TV for Everybody"]

[Text] All Norwegian cable-TV firms who would like to re-broadcast TV programs from our neighboring Nordic nations will soon be able to do it without applying for a license. This provision went into effect yesterday, when the Odelsting approved an alteration in the broadcasting laws permitting it. It will not be expensive for Norwegian TV-subscribers to receive these programs.

Spokesman for the new proposal, Sveinung Lunde (Conservative), said that from now on, by means of a simple, low-cost method, TV programs from our neighboring nations will be available to large groups of people who up to now have only been able to watch Norwegian programs.

"For some years now," Lunde said, "it has been possible in parts of our country to receive TV broadcasts from neighboring countries, primarily TV broadcasts from Sweden received in the eastern part of Norway. But Danish and Finnish programs have also had viewers in Norway, in the Sorland area and in northern Norway respectively.

"The change which is now going into effect will enable TV broadcasts to be received and re-broadcast throughout Norway," Sveinung Lunde continued, emphasizing that this particular provision would only apply to Nordic TV broadcasts.

The re-transmission which is to occur will be accomplished by means of long-distance cables and radio networks, or via communication satellites, providing that the subscribers are hooked up to cooperative antennas or cable networks. Besides the area in eastern Norway which has been able to receive Swedish TV for some years now, this will involve 20,000 households in western and northern Norway, increasing to 200,000 households in 1987, according to Lunde.

Hans Olaf Tungesvik (Christian People's Party) said that he has not supported this proposal because he specifically wishes to further open up the access to

Swedish TV in Western Norway. But he did emphasize that large areas in the eastern part of the country, plus one area in the northern sector, have had the opportunity of receiving Swedish TV for some years now. It was more with the idea of making conditions equal between the different parts of the country that the Christian People's Party has now been able to support the proposal, according to Tungesvik.

Minister of Culture Lars Roar Langslet explained that the Department of Culture will be appointing a working committee as soon as possible to examine the various legal aspects involved in the transmission of broadcasts and other services via cable networks. "Our current experimental activity with local TV and the increasing amount of satellite broadcasts both indicate a need for some legal regulation in the area of cable TV," Minister Langslet maintained.

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END